Business Staff on Page 4

EXT WEEK . . .

Suspended Conveying System
Silver Alloy Brazing Techniques
Forming with Unconventional Dies
Standardization Accelerates Output
Basic Open Hearth Operating Rates

STEEL

The Magazine of Metalworking and Metalproducing

VOL. 121, NO. 9 SEPTEMBER 1, 1947

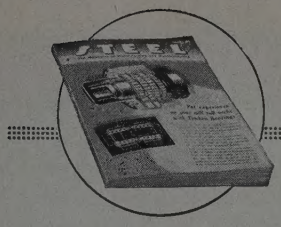
NEWS

TECHNICAL

MACHINE TOOL SHOW SECTION

MARKETS

★—Denotes regular features.



September 1, 1947

Great Potential

A substantial portion of this issue is devoted to the 1947 Machine Tool Show which will be held in the Dodge-Chicago plant in Chicago, Sept. 17 to 26, inclusive.

It would be difficult to exaggerate the importance of this event. To say that 294 exhibitors will demonstrate 2000 items of equipment valued at $16 million in 12 acres of floor space in the world's largest manufacturing plant under one roof may afford a vivid picture of the size of the show but it fails to convey an adequate idea of its significance.

In order to judge the 1947 show in proper perspective, think back to the machine tool shows held in Cleveland in 1927, 1929 and 1935. By all accepted standands, these were outstanding events. They helped to crystallize the steady advancing prestige of American-built machine tools in world markets.

Next, consider what has happened since the 1935 show. When war engulfed the world, the United States became the arsenal of the Allied nations. Because the war inflicted great damage upon the machine tool building facilities of Great Britain, Germany, France and Japan, the United States emerged after V-E and V-J days as the only industrial nation having a machine industry of importance that was intact.

Also, this American tool industry had gained priceless experience under pressure. It had capitalized on improved cutting materials and developed improved machining techniques. It had accumulated a great reservoir of new "know how," much of which remained in storage because it was impossible to introduce new models during the war. Consequently, the cumulative benefits of seven years of extraordinary experience in providing the machine tool needs of the victorious nations are incorporated in designs which just now are coming to the attention of machine tool users.

That is why the 1947 Machine Tool Show has unprecedented potentials. In the huge Dodge plant will be seen the best the world has to offer in machine tools and accessories, exhibited by builders whose facilities for production are less hampered by the after-effects of war than those of their contemporaries in most other nations. In these new models at Chicago are embodied the potential for an economy which, if utilized properly, could help change this worried world from a state of frustration to one of progress.

By all means, attend the 1947 show. Derive a full measure of its benefits and, above all, keep in mind its ultimate objective of providing "more goods for more people at lower costs."

* * *

CUSTOMER GOOD WILL: A year ago a member of our family ordered some fine glassware from a local department store. Months later when the glass was received from the manufacturer, it was billed at double the price prevailing at the time the order was placed. The department store asked the manufacturer to honor its orders at the original price. The manufacturer refused. With rare appreciation of customer good will, the department store charged only the original price and absorbed the loss.

Two weeks ago another member of the family discovered that most of the new furniture purchased more than a year ago was warping. A letter reciting the circumstances was sent to the local retail dealer from which the furniture was purchased. A prompt reply stated the manufacturer would replace the entire set. Last Monday the replacement furniture was delivered, without cost.

These examples of high regard for customer good will are in sharp contrast to the bitter letters we are receiving from customers who complain about the

(OVER)

treatment they are receiving from steel sellers. In spite of these letters, we feel sure that some steel vendors must be continuing to court the favor of customers. We will welcome a few case stories of good treatment of steel customers. They may enable us to help heal the breach between steel sellers and steel buyers, which is assuming alarming proportions. —pp. 41, 57, 281

° ° °

DOLLAR CRISIS ABROAD: How far-reaching will be the effect of the action of British authorities in terminating the conversion of sterling to dollars, except for American accounts, cannot be predicted with certainty at this early date. The action at London ties in logically with the measures that some other nations had adopted previously to conserve dollar credits.

One effect will be to accentuate three zones in world trading—the sterling zone, the dollar zone and the zone dominated by Soviet Russia and her satellites. Attempts to restore world trade under these zonal arrangements will be difficult, and at first glance it would appear that the United States, as well as Britain, will be forced to revise trade relations with nations which in the past were among our best customers.

The incident again emphasizes the complexity of postwar world relations and should cause us to improve the functioning of government departments so that they can cope with it more effectively.

—p. 43

° ° °

TWO INCONGRUITIES: Among some observers the charge by the Federal Trade Commission against the steel industry for alleged price fixing seems incongruous on at least two counts.

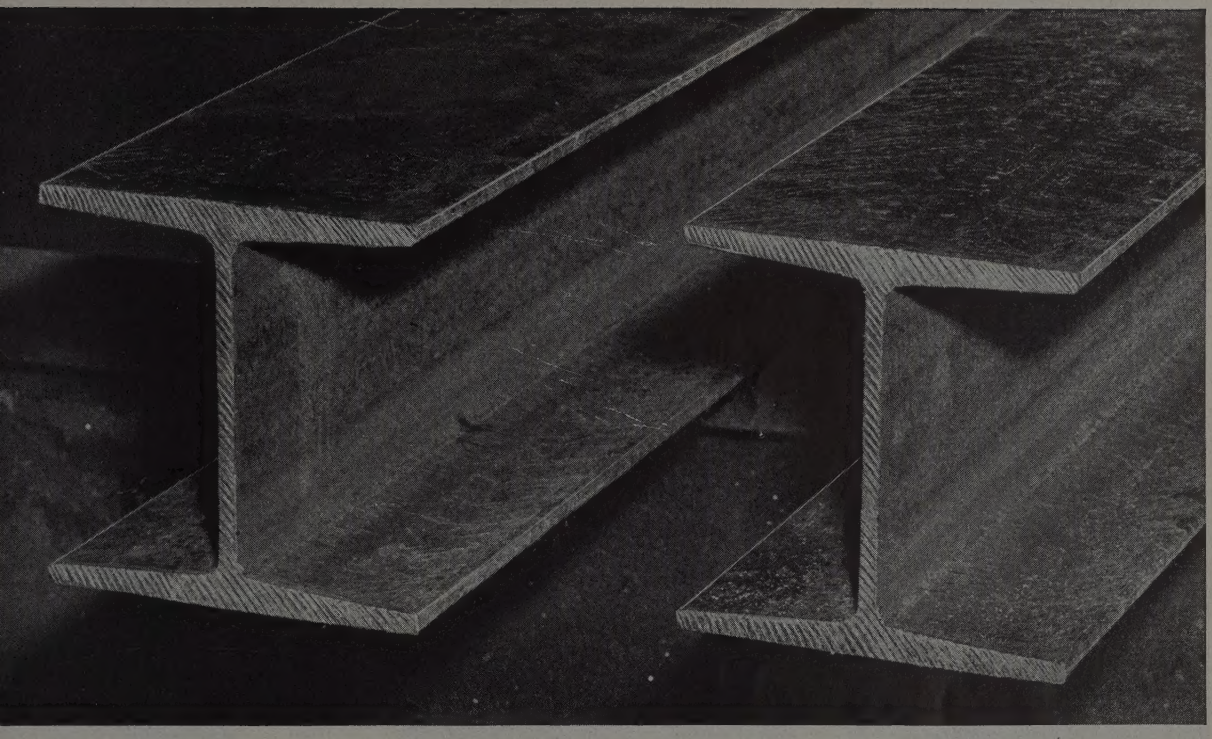
Under OPA ceilings, prices were virtually uniform because of government edict. In the brief period since OPA ceilings were abandoned, steel sellers have had their first postwar opportunity to develop a free market. The result has been a far greater lack of uniformity in prices than existed before the war.

The second odd circumstance is that in attacking the multiple basing point system and apparently favoring f.o.b. mill prices, FTC would further aggravate the very situation about which steel customers now are complaining bitterly. In refusing to quote on more distant basing points, some steel sellers are closer to the f.o.b. mill basis than at anytime in decades and the customers don't like it. Imagine the howl that would be heard now if all but the mill bases had been abandoned! —p. 46

SIGNS OF THE TIMES: American Federation of Labor reports it spent $819,648 in the first half of 1947 lobbying against the Taft-Hartley bill (p. 50), while the Committee for Constitutional Government Inc. spent $248,506 during the same period lobbying for the bill, for the loyalty bill and for liberalized taxation. . . . Sales of surplus machine tools by War Assets Administration still affect the new machine tool market seriously. Bullard Co. of Bridgeport, Conn., states (p. 48) it can trace a direct loss of $1 million in sales thus far this year to competition from its own machines in the surplus tool market. . . . Survey by the Purchasing Agents Association of Chicago shows that 49 per cent of the companies polled had lower backlogs of orders at the end of July than at the end of June, indicating (p. 45) that "consumers are getting more and more of the things they are waiting for." Apparently stocks of rolled steel do not figure prominently in these returns, because Labor Day finds the situation in many steel products (p. 281) as tight as at any time since V-J Day. . . . Study of some labor contracts written to ease the impact of the penalty provisions of the Taft-Hartley Act shows that it was unfair to conclude that employers "caved-in" under union pressure. For instance, the agreement which ended the 28-day strike at Murray Corp. of America (p. 57) includes a definite commitment by the union that there will be no sitdowns or slowdowns during the life of the agreement and that there will be no strikes whatever in connection with production standards, management's rights and functions and attempts to modify the agreement before its expiration date. . . . Recommended reading for those who expect to attend the 1947 Machine Tool Show in Chicago beginning Sept. 17 includes the floor plan of the "world's largest machine shop" (p. 154), Guy Hubbard's formula for covering the event so as to derive the greatest benefits from it (p. 144), the economic significance of the show by H. L. Tigges (p. 148), Harold Johnson's seven points on what users expect in new machines (p. 150), list of exhibitors (p. 156) including brief descriptions of exhibits, and programs of the various associations (p. 152) participating in the 1947 Machine Tool Congress. . . . Exports of steel during the first four months of 1947 (p. 41) were only 7 per cent of domestic steel output for sale.

E. L. Shaner

EDITOR-IN-CHIEF



IDENTICAL ... But one is TWICE AS STRONG

One of the H-beams shown above is ordinary carbon steel. The other is Inland Hi-Steel—a low alloy, high strength, structural steel. Hi-Steel has nearly twice the working stress of ordinary structural steel, 50% greater ability to stand up under impact loads, and a marked resistance to continued vibration. In addition, it has about five times the atmospheric corrosion resistance and is far more resistant to abrasion.

On mobile equipment, Hi-Steel makes it possible to eliminate considerable dead weight and increase payload, without sacrificing strength.

Unfortunately the present demand for Hi-Steel continues to exceed the supply. To make larger tonnages available to you, other steel companies have been licensed to make this superior product. Inland Steel Co., 38 S. Dearborn St., Chicago 3, Ill. Offices: Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

Advantages of INLAND HI-STEEL

- HIGHER STRENGTH
- GREATER CORROSION RESISTANCE
- MORE RESISTANT TO ABRASION
- EASY TO WORK
- LOW IN COST

HI-STEEL meets the requirements of SAE Specification 950

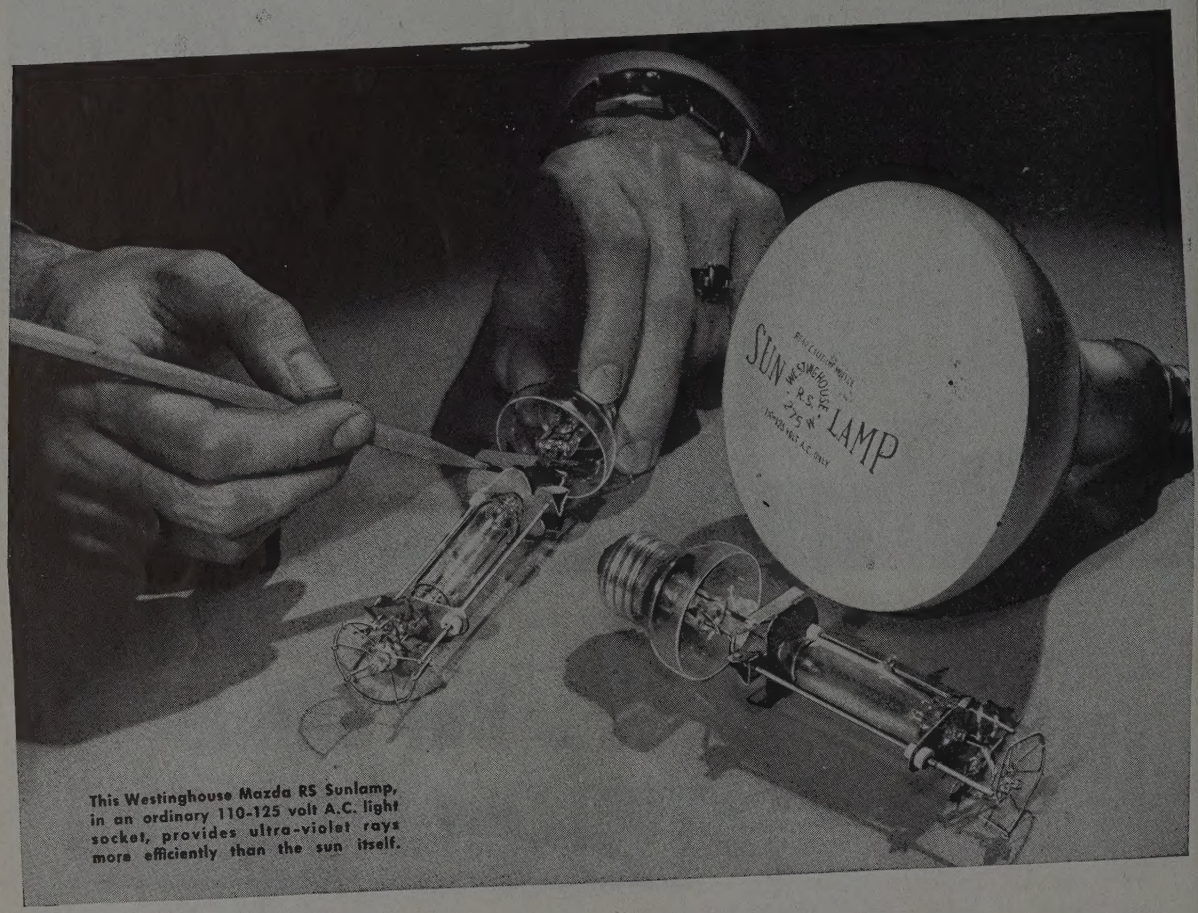
Write for Booklet

INLAND HI-STEEL

INLAND STEEL

NLAND PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • PILING • FLOOR PLATE • RAILS • TRACK ACCESSORIES

A new light on sunlight



This Westinghouse Mazda RS Sunlamp, in an ordinary 110-125 volt A.C. light socket, provides ultra-violet rays more efficiently than the sun itself.

How 3 metals helped beat the sun at its best

They wanted July sunshine from a single bulb . . . any time of year . . . at a click of a switch. Just screw it into a socket like an ordinary light bulb. No special transformers . . . no special fixtures.

Westinghouse engineers were sure it could be done. So, they designed a small quartz mercury vapor tube . . . placed it inside a bulb . . . and supported it there between two flat spring parts which cushion it top and bottom.

Then they ran into metal problems.

What metal would remain a spring with operating temperatures running up to 750° F.? How could any spring survive 932° F. while the bulb was being evacuated? Red-hot springs soon go limp.

After much experimenting, Westinghouse engineers hit upon a metal that seemed custom-fitted to their needs: "Z"* NICKEL. It's an age-hardenable nickel made especially for applications where a metal with high spring properties is needed to withstand destructive temperatures and corrosive conditions.

Test after test proved that the little "Z" Nickel springs keep their grip on the quartz tube in spite of the heat, and cushion it against damage by bumps for the life of the lamp.

The next two problems were just as easy with INCO Nickel Alloys. For the inside conductors, flexible 38-strand "A"* Nickel wire provided the electrical conductivity and heat-resistance. For the sturdy little structural frame which holds the whole assembly together, "D"* Nickel provided the necessary hot-strength.

Result: *a long-lasting bulb, says Westinghouse, that sun tans more efficiently than the sun itself.*

* * *

What's your metal problem? If it's high temperatures, strength, ductility . . . or a combination of these . . . send for "Engineering Properties of Nickel." Or investigate the other tough, corrosion-resistant INCO Nickel Alloys, and you'll probably find exactly what you need. Full technical information and assistance are yours at any time.

*Reg. U.S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC. • 67 Wall Street, New York 5, N.Y.

EMBLEM OF SERVICE

NICKEL (INCO) ALLOYS

TRADE MARK

Export steel piled on a dock at Los Angeles harbor awaiting a ship which will move it to Indo-China

Tighten Steel Export Trade Regulations

STEEL
September
1
1947

New screening procedure ordered as of Oct. 1 which will be practically the same as wartime control, though applying to fewer products. Some shipment cancellations expected

WITH domestic steel supplies, despite near-capacity production, running far short of consuming industry's requirements ever since the war ended two years ago, consumers have been critical of the steel producers' policy of shipping a certain percentage of their output out of the country.

Such exports, it has been charged, have caused, to considerable extent, the shortages which even today are forcing metalworking shops to curtail operations, and in some cases to suspend activity entirely for temporary periods because of lack of steel.

Actually exports have amounted to only a small percentage of total steel production. This, however, has not served to allay criticism of consumers who hear reports of substantial tonnages moving abroad when they cannot obtain enough metal to keep their shops going.

Whether the criticism struck a responsive chord in Washington is uncertain, but, nevertheless, the Office of International Trade, Department of Commerce, recently took steps which will have some effect on the movement of steel abroad. It announced a revision of export controls on certain iron and steel products, effective Oct. 1, which in effect returns many steel items to virtual wartime control.

While the new regulations may not affect volume in the long run, trade opinion is that they probably will lead to a fair number of shipment cancellations for a while, and that undoubtedly they will affect geographical distribution and change the emphasis on certain types of steel. To what extent these changes will accrue to the advantage of domestic steel supply is uncertain.

The new screening procedure, according to the Department of Commerce, will be practically the same as wartime export controls, although a lesser number of items will be subjected to the regulations.

Approximately 50 major iron and steel items, including pig iron and scrap, are affected by the regulations, with export licenses to be issued on individual orders only and with limitations on the amount of steel, the country receiving it, and the end-use for which the steel is intended.

Currently, with certain exceptions, steel is being shipped overseas under consolidated licenses issued by the Office of International Trade. Present licenses are issued without regard to distribution among foreign countries except for a few so-called non-K countries and are valid within the total export quota which the government determines may be shipped abroad without endangering the domestic account. Under the individual licensing system, country quotas based on the relative need are established within the total authorized for export.

In view of the world-wide shortage of steel and in line with the objectives of the Marshall plan, primary consideration of the new system will be given to shipments that will restore basic industries and contribute to the recovery and self-sustenance of the purchasing countries.

Changes with respect to the emphasis on various types of steel will not become clear until export quotas are set up for the fourth quarter. These quotas may not become established until after the period has actually gotten under way, such as was the case in the current quarter, for instance; however, an effort is being made to get them set up this month if at all possible.

Third quarter quotas included 100,000 tons of plates (although applications for more than 250,000 tons were received); 100,000 tons of black and ungalvanized sheets; 140,000 tons of tin plate; 35,000 tons of concrete bars; 15,000 tons of hot

merchant carbon bars, 1 inch and under; 15,000 tons of cold-finished carbon bars, 1 inch and under; 15,000 tons of wire rods; 15,000 tons of hot strip; 4500 tons of sheet bars; and 10,000 tons of angles, 6 inches and under.

On various items, such as large structurals, the larger sizes of merchant bars, alloy steels and others, no quotas were established.

South American countries, among the larger importers of American steel since the end of the war, will likely be adversely affected by the new licensing program, according to steel exporters; in fact, so will most sections of the world where war rehabilitation is not a factor. However, dollar shortages will probably adversely affect shipments to most of these countries, anyway.

Individual licensing, incidentally, has been in effect on tin plate all along; it was never lifted at the end of the war. For the past several weeks plates also have been on an individual licensing basis.

Steel exports during the first six months totaled 3,125,642 long tons, as compared with 4,580,946 long tons during all of last year. These shipments, however, reflect the exportation of considerable surplus steel, with direct mill shipments, according to some trade estimates, running between a half and two-thirds of these totals.

Total tonnage of steel exported in the first four months of the year was 1,426,364 net tons, or 7 per cent of the total production for sale during the period, figures recently released by the American Iron & Steel Institute show. Distribution to the consuming industry classifications of total steel tonnage produced in the four-month period was shown in the July 28 issue of STEEL, pp. 46, 47

Of the 39 classes of products which comprise the steel industry's total output, six accounted for 57 per cent of the total export tonnage. These six products in order of importance by volume are: Plates; hot rolled bars; hot dip tin and terne plate; ingots, blooms, billets, slabs, sheet bars and seamless tube rounds; structural shapes; and rails (over 60 lb.). The four-month total exports of each of these products amounted to more than 100,000 tons.

As percentages based on product exports compared to net total shipments to all consuming groups, five of the six products each accounted for more than 7 per cent. Exports of hot rolled bars, however, were only 5.9 per cent of total hot rolled bar sales to all industry groups.

Flat rolled products, currently in short supply domestically, were exported in comparatively small tonnages percentagewise to total production for sale. Excepting hot dip tin and terne plate, which was one of the six important exported products volumewise and of whose net production for sale 23.4 per cent went to overseas markets, none of the sheet and strip classifications approached as percentages of total net production for sale the 7 per cent which applied for all products.

Skelp, which ranked fifteenth in tonnage volume of exports, was the leading export product on the basis of percentage of the item produced for sale—41.7 per cent of all skelp sold to consumers in the period going into exports. However, by far the greatest amount of skelp produced in this country is shipped by the steel mills to members of their own industry for further converting and processing, and therefore the net amount of this product offered for sale to the consuming classifications, including export, is only a fraction of the total amount produced. This method of determining net total steel product tonnage is used by the institute for all products and shows that a larger proportion of the semifinished steel products' output is returned to the industry for further processing than is the case for finished steel items.

Ranking second as an export item (again, as in the accompanying tabulation, on the basis of product export against total product output for sale) was hot dip tin and terne plate. Third place went to rails of less than 60 lb. with 18.1 per cent exported.

Exports of the remaining 36 products

(*Please turn to Page* 298)

Steel Export Shipments by Products—January-April, 1947

(In net tons of all grades of steel, including alloy and stainless)

Product	January	February	March	April	Total	% of Exports to Product Output for Sale
Semifinished steel (excl. skelp and wire rods)	29,535	33,478	28,873	33,122	125,008	14.5
Skelp	7,871	3,895	7,881	4,724	24,371	41.7
Wire Rods	3,312	1,305	3,278	3,918	11,813	5.7
Structural Shapes	26,096	32,067	27,677	34,640	120,480	8.2
Steel Piling	3,749	1,518	2,416	4,488	12,171	11.3
Plates	45,046	43,457	34,737	39,292	162,532	8.2
Rails (over 60 lb)	33,077	19,367	19,692	29,675	101,811	13.6
Rails (all other)	1,306	3,660	3,016	2,552	10,534	18.1
Joint Bars	1,948	2,672	2,066	1,425	8,111	12.7
Tie Plates	3,308	2,207	3,611	2,015	11,141	6.9
Track Spikes	368	385	1,578	963	3,294	5.4
Hot Rolled Bars	39,989	41,888	41,133	37,616	160,626	5.9
Cold Finished Bars	3,576	2,849	3,866	4,023	14,314	2.3
Conc. Reinf. Bars	14,959	22,114	21,599	20,258	78,930	17.4
Tool Steel Bars	150	109	183	140	582	1.7
Butt Weld Pipe, Tubes	8,479	6,003	11,178	10,998	36,658	6.9
Lap Weld Pipe, Tubes	2,579	1,058	2,085	1,816	7,538	5.6
Electric Weld Pipe, Tubes	3,844	4,761	14,180	7,741	30,526	10.0
Seamless Pipe, Tubes	13,410	14,727	14,884	13,310	56,331	8.1
Conduit	303	324	351	274	1,252	3.0
Mech., Pressure Tubing	2,119	1,778	2,023	2,252	8,172	3.9
Drawn Wire	8,185	9,009	8,650	8,752	34,596	4.1
Nails, Staples	2,503	1,515	1,359	1,864	7,241	2.4
Barbed, Twisted Wire	3,002	2,604	2,113	4,058	11,777	14.6
Woven Wire Fence	357	464	493	715	2,029	1.5
Bale Ties	72	.....	90	44	206	0.5
Ordinary Black Plate	8,016	10,229	10,911	7,690	36,846	12.8
Chem. Treat. Blk. Plate	152	353	125	44	674	5.0
Hot Dip Tin, Terne Plate	38,604	31,450	34,055	43,544	147,653	23.4
Electrolytic Tin, Terne Plate	3,602	4,130	4,962	3,705	16,399	3.6
Hot Rolled Sheets	14,738	19,665	17,497	20,264	72,164	3.0
Cold Rolled Sheets	6,713	10,289	10,762	10,790	38,554	2.2
Coated Sheets	6,476	5,305	5,749	6,213	23,743	4.5
Electrical Sheet, Strip	650	905	924	899	3,378	2.6
Enameling Sheets	.....	209	135	211	555	0.7
Hot Rolled Strip	5,433	6,155	6,100	5,079	22,767	3.9
Cold Rolled Strip	1,183	1,095	1,428	1,511	5,217	1.0
Wheels	4,734	4,224	4,001	2,653	15,612	12.7
Axles	111	28	302	318	759	1.3
Totals	349,555	347,250	355,963	373,596	1,426,364	6.97

British Exchange Curtailment To Hurt U. S. Trade

Action limiting conversion of sterling into dollars seen reducing purchases in America by Canada and others

WASHINGTON

BEHIND the official jargon cloaking announcements on the British-American financial talks, it is learned that a thorough canvass of British trade with this country is taking place.

One of the more serious aspects of the recent action of British authorities terminating conversion of sterling to dollars, except for American accounts, is the possible effect on Canadian commerce with this country. Canada, as the United States' best customer, may experience difficulty in getting dollar exchange for British pounds resulting from its extensive trade with Britain. The situation is still in motion, however, with discussions by technical groups of the United States and Britain proceeding, although talks between principals have ended.

Argentina Also Seen Affected

Another important country possibly to be affected by the exchange curtailment is Argentina. Selling beef to England, the Argentine was in a position under the previous arrangement to convert the resulting sterling into dollars, if desired. The rise in value of U. S. exports to South America in May, compared with April, was largely due to a gain in exports to the Argentine from $48.4 millions in April to $71.7 millions in May.

Exports to the Argentine in May, in fact, were seven times those for May last year, and more than the entire prewar year, 1939. Particularly important in that trade, said the Department of Commerce, were $17.1 million worth of automobiles; $25.1 million of other vehicles and machinery; steel mill products valued at $8.1 million, besides others.

Brazil, now an important competitor in foreign tobacco and cotton goods markets of the United States, likewise showed heavy gains in purchases from this country in May over April, and also is liable to pressure to some extent.

A decline in U. S. exports to nearly all parts of the world began to set in during May, the department's latest figures indicate.

The United States, through Export-Import Bank, has extended three lines of credit to important Italian industrial interests, as follows; $10 million for use of Fiat, Societa per Azioni, principal producer of automobiles, marine engines and other mechanical equipment; $9 million for Montecatini, Societa per l'Industria Mineraria E Chemica, holding an important place in Italian mineral and chemical production, and $4 million for Pirelli, leading manufacturer of tires, telecommunication cables, etc.

The International Bank for Reconstruction & Development has granted a loan of $40 million to Denmark. The loan is designed to facilitate importation of steel products, machine tools, textile machinery, trucks, agricultural tools, etc.

Ships More Bale Ties to Western Livestock Raisers

Bethlehem Pacific Coast Steel Corp. announced last week it is furnishing through jobbers sufficient steel bale ties to western livestock raisers to bale one million tons of hay during the current year. Based on a feed ration of one ton of hay per head, this would winter one million cattle. Bethlehem Pacific has increased shipments of bale ties to western consumers by more than 50 per cent since 1941. According to a 1945 census by the U. S. Department of Agriculture there were at that time 2,830,721 head of cattle in California.

Lone Star Steel Begins Ore Mining Operations

Lone Star Steel Co.'s Daingerfield, Tex., iron ore mines were put into operation late last month for the first time since 1945. Simultaneously, the firm's $3 million beneficiation plant went into action as Lone Star, which last year acquired the government-built pig iron blast furnace at Daingerfield, launched a production program which its officials said would keep the East Texas plant running at capacity for three years just on the basis of back orders alone.

Both the mining operations and the beneficiation process will be operated under contract with Gifford & Hill and Austin Bridge Co., both of Dallas.

Present, Past and Pending

■ COAL GASIFICATION PLANT TO BE BUILT

PITTSBURGH—Contract for design and construction of a coal gasification pilot plant at Library, Pa., has been awarded by Pittsburgh Consolidation Coal Co. to Blaw-Knox Co. The plant will be used in seeking a practical commercial process of making synthesis gas, a first step in producing synthetic fuel from coal.

■ GETS MANUFACTURING RIGHTS ON SWISS TRACTOR

WILLOW RUN, MICH.—Graham-Paige Motors Corp. has obtained manufacturing rights on a new Swiss tractor and several other new farm implements designed in Europe for use by small-acreage and subsistence farmers.

■ METALLIC TUBING CO. ABSORBS STEEL PRICE RISE

PHILADELPHIA—Increased efficiency in production is enabling Pennsylvania Flexible Metallic Tubing Co. to absorb the steel price rise, E. J. Ronan, executive vice president, announced. Last April the company made price cuts of up to 41 per cent.

■ STUDEBAKER ANNOUNCES PRICE INCREASES

SOUTH BEND, IND.—Studebaker Corp. last week announced price increases of three passenger car models (Champion, $85; Commander, $98; and Special Land Cruiser, $115), heavy trucks, $50 and light trucks, $85.

■ SEEKS APPROVAL TO BUILD 470-MILE PIPE LINE

EL PASO, TEX.—Application to build another 470 miles of pipe line has been filed with the Federal Power Commission by El Paso Natural Gas Co. The line, which would carry natural gas from San Juan, N. Mex., to Needles, Calif., and accompanying facilities would cost $55 million.

■ UNITED-CARR FASTENER BUYS CHICAGO COMPANY

CHICAGO—Columbia Fastener Co. here has been acquired by United-Carr Fastener Corp., Cambridge, Mass. Columbia produces sew-on dress fasteners.

■ SUIT BROUGHT UNDER TAFT-HARTLEY LAW

PITTSBURGH—Believed to be the first action of its kind under the new Taft-Hartley labor law, suit for $485,000 has been filed in federal court here by W. J. Dillner Transfer Co., Pittsburgh, against the AFL teamsters union in connection with work stoppages dating back to April, 1944. In addition to Taft-Hartley law, the suit was brought under War Labor Disputes Act and antitrust laws.

Inter-Union Fights Claim NLRB Notice

WASHINGTON

SETTLEMENT of jurisdictional disputes and secondary boycotts will rate No. 1 priorities on the list of cases coming before the new, enlarged National Labor Relations Board as it acts as a labor court for the Taft-Hartley law's provisions. Presenting its rules on Aug. 22, the day the final provisions of Labor-Management Relations Act of 1947 became effective, NLRB ordered "fast and fair" processing of all cases, and emphasized that it considered jurisdictional squabbles and cases involving secondary boycotts second in importance only to matters threatening public health and welfare.

In the statement by the five-man board interpreting the law's newly effective provisions, rules were set up to handle all labor-management cases arising out of the legislation. These rules will govern the handling of strikes for union recognition, policing of union shop contracts, holding of collective bargaining elections and judgment in allegedly unfair labor practices.

Hearings To Be Held Within 10 Days

In jurisdictional disputes, which may be brought up for NLRB attention by any "interested party" who feels affected by the controversy, hearings must be held within 10 days after the complaint has been filed. The regional director's record of his investigation of the case and the hearings which are to be held in the 10-day period will be sent to Washington for the board's decision as to which union's members may do what work. Failure by the unions to comply with the board's decision will result in ultimate court enforcement. At any time during the procedure, the regional director may ask for an injunction stopping the jurisdictional strike.

On the eve of the effective date of the law's provisions, while the board readied its statement, some 125,000 workers were embroiled in an estimated 200 work stoppages, and an additional 250,000 were involved in critical contract negotiations, a few of which were settled seconds before the law's full force took effect.

Advent of the law was signalized by an unexpectedly strong note, in the blunt notice to labor organizations to come before it free of communist taint, or be considered as outside its benefits. This notice, by NLRB General Counsel Robert N. Denham, was pointed up by a subsequent announcement that the deadline on the Wagner Act caught the board with approximately 600 cases still

Jurisdictional disputes and secondary boycotts have No. 1 priority in NLRB cases as effective date of Taft-Hartley law throws new labor dispute machinery into high gear. Law evasions to be investigated

pending for decision. Of these, 410 involve elections, and 195 deal with allegations of unfair labor practices on the part of employers.

As regards the election cases, said the board, union parties to such elections were to be notified of necessity of filing financial registration and non-communist affidavits respecting each officer of the union, as required by the new law. The unions were to have 20 days from date of receipt of the letter to comply.

The board stated that failing compliance with these requirements by a union, it was precluded by statute from processing the union's petition further. Such petition would have to be dismissed. The same policy will apply on some 3000 cases still at the stage of consideration in field offices, said General Counsel Denham.

A further trenchant pronouncement said that of the 195 cases alleging unfair labor practices on the part of employers, these would be considered under the Taft-Hartley law, and not under the law as it was at the time the allegations were made.

Probes of Law's Evaders Promised

In Washington, Rep. Fred A. Hartley Jr. (Rep., N. J.) promised joint congressional investigation of all attempts to violate either the letter or the spirit of the law which bears his and Senator Taft's name. These investigations, he said, would be made by the committee created under the law to provide a continuous check on the law's operation.

"Any and all efforts to by-pass the law, whether by unions working alone or in conspiracy with employers" will come up for investigation, he declared. These efforts, it was indicated, include such tactics as contracts providing unions with immunity in suits arising out of wildcat strikes, and, it was seen, might also apply to such devices as that originated by the International Typographical Union when it determined to permit its closed shop contracts to expire and be replaced by conditions of employment, requiring in effect a closed shop.

During the period between the law's enactment on June 23 and the effective date of Aug. 22 on a number of its provisions, contracts to nullify some of its restrictions have been legion. First important action along these lines was the now-famous "willing and able" to work clause inserted in the coal miners' contract soon after control of the mines was returned to private ownership.

More recently the United Auto Workers-CIO in their contract negotiations with the Murray Corp. of America, Detroit, asked for and received, although it required a 29-day strike to do so, a clause exempting the union, provided proper steps are taken, from liability for "unauthorized stoppages, strikes, intentional slowdowns or suspension of work." At virtually the last minute before the law's provision allowing a union shop only with approval of a majority of workers took effect, Ford Motor Co. and the UAW signed a contract, in effect granting the union shop. Earlier last month, it will be recalled, Ford and UAW agreed that the union would be immune for possibly a year from the Taft-Hartley provision allowing the company to sue for strike damages.

Labor's Retaliation Indicated

These examples are indicative of labor's concentrated activities to thwart the law of the land, and how strongly the unions feel against the law, its writers and enactors may be gaged from several union spokesmen's advice that election day be made into one of labor's paid holidays so that organized labor can descend on the polls en masse in 1948 to defeat the legislation's supporters.

First political tests of the Taft-Hartley Labor Act probably will come in two by-elections scheduled for Michigan and Pennsylvania, with the Michigan election this week, to select a successor to Representative Fred Bradley, deceased. As both districts involved have been Republican for some years, it was considered likely that the administration position on the law would be an issue.

Other elections are in the offing, with dates not set, in which the same issue is considered likely to figure.

Despite opposition to the Taft-Hartley law and the restrictions it imposes on unions, many state legislatures this year have seen fit to incorporate similar provisions in their labor laws, several, for example, having passed anti-closed shop legislation.

Delaware, Georgia, North and South Dakota, Texas and Utah have enacted laws restricting or regulating picketing. Mass picketing is specifically prohibited in all these states except North Dakota,

vhere if the majority of employees op-
ose a strike picketing is illegal. Secondary
oycotts are outlawed in Delaware, Idaho,
owa, Minnesota, North Dakota and
Utah under laws passed this year.

A majority vote is required before a
trike can be called under the laws of
oth Delaware and Utah. Under a new
Texas law, in case of strikes or picketing
y union members when such a strike
s held a breach of contract the union is
iable for damages.

Four states, Indiana, New Jersey,
Texas and Virginia, enacted legislation
egulating disputes in public utilities,
nd all but the Texas law set up special
rocedures for arbitration and conciliа-
ion. Under the New Jersey law, which
pparently prohibits any strike in public
tilities, a union is subject to a $10,000
ine for striking in violation of the act,
nd persons violating the act may be
ined between $250 and $500, or jailed
or 30 days, or both. Each day's viola-
ion constitutes a separate offense.

Strikes by public employees are pro-
ibited in New York and Texas, and in
he latter state, state officials may not
nter into collective bargaining agree-
nents with labor organizations.

The "check-off" is outlawed in Dela-
vare, and labor unions are required
o register with the secretary of state
nd to make financial reports, as they
re in North Dakota. In Arizona, Dela-
vare, North and South Dakota and
Texas, labor organizations may sue or
e sued and are responsible for acts of
heir authorized representatives. The
Delaware omnibus labor relations law,
vhich makes closed shops illegal, also
rohibits other "union security" agree-
nents.

J. & L. Takes Firm Stand Against Wildcat Strikes

PITTSBURGH

Warning that the management of
Jones & Laughlin Steel Corp. will not
'permit or condone" wildcat strikes in
defiance of written contracts has been
erved on J. & L. workers by the corpor-
ation's president, Ben Moreell, following
ettlement of a 2-day wildcat strike by
50 scarfers at the company's Pittsburgh
lant.

In his letter, which was distributed to
ll Jones & Laughlin employees, Mr.
Moreell termed the strikers "a small
group of willful men" and added, "By
heir action this group has violated the
erms of the management-union con-
ract; they have caused many innocent
eople to lose sorely needed wages; and
hey have jeopardized the security of
his corporation, which means they have
eopardized their jobs and mine in order
o indulge in selfish willfulness."

ATOMIC CHIEFS: Five of the world's most important men met around a table at the University of California, Berkeley, as members of the Atomic Energy Commission toured West Coast laboratories and discussed the highly important subject, atomic energy. Left to right are: Prof. Ernest O. Lawrence, director of the University of California radiation laboratory; Lewis L. Strauss, New York investment banker; Dr. Robert F. Bacher, Cornell University nuclear physicist; David Lilienthal, Atomic Energy Commission chairman; and Sumner T. Pike, New York industrialist. NEA photo

Purchasing Agents' Survey Indicates High Production Rate Is Cutting Order Backlogs

MAINTENANCE of a high production rate has contributed substantially to reduction of order backlogs, July business survey of the Purchasing Agents Association of Chicago shows.

The association found 49 per cent of companies polled had lower backlogs at the end of July than at the end of June, and states, "When 49 per cent report a lower order backlog, it should mean that consumers are getting more and more of the things they are waiting for—at least those that still can afford them are."

Although order backlogs were being whittled down, the July survey, said the association, indicates business will be good at least for the near term, probably as long as products continue to move at higher prices. In July, business conditions were changed little from the high rate of June.

The association warned, however, that "too much price inflation must eventually place many products out of reach and bring on the sharp downward reaction all business is anxious to avoid." Meanwhile, the recent fears of recession seem to have been pushed into the background, said the association, pointing out the percentage of purchasers buying for the longer period has increased.

"People formerly buying for shorter periods, such as hand-to-mouth to 60 days, are coming into the 90-day bracket," the association explained, adding that "this perhaps means confidence has returned."

Faster deliveries from vendors in July than in June were reported by 57 per cent. "Generally faster deliveries, which probably also mean more consistent deliveries of some of the critical items, apparently are keeping inventories evenly balanced at the current levels. Also, better deliveries are, no doubt, made possible by consistently high employment and production, neither of which showed any tendency to decline," the association said.

Reflecting the continued inflation of prices, the survey revealed 64 per cent of those reporting had paid higher prices in July than in June. This represented a 100 per cent increase in the number reporting higher prices, for in June only 32 per cent said they paid higher prices than in May. The July percentage was the highest recorded since March, 1947.

Steel Plans Fight On FTC Charge

Expect industry's reply to complaint of price fixing and monopolistic practices will be ready by Sept. 19. Basing point pricing under attack

STEEL industry's answer to charges of price fixing and monopolistic practices levelled at it by the Federal Trade Commission in a formal complaint chiefly attacking the multiple basing point system of pricing is being prepared and initial briefs are expected to be ready well before the filing deadline Sept. 19.

So far as can be learned the industry's defense will be patterned much along the same lines as in past actions of this kind. However, considerable new detail may be offered in evidence reflecting changes in marketing steel which have been effected since the multiple basing point system came into vogue in 1924 upon issuance of a "cease and desist" order by the FTC against "Pittsburgh Plus" pricing.

CELEBRATE RECORD: One of the nation's few remaining hand mills, the Wood Works of U. S. Steel's Carnegie-Illinois Steel Corp. where stainless steel sheets are rolled, as pictured above, recently celebrated completion of its twelfth year without a single lost-time accident. The record is attributed to the Carnegie-Illinois safety program and the high skill of the employees of the hot mill where stainless sheets are produced in small orders for the precision requirements of Swiss watchmakers and surgical instrument makers

Departs from Past Actions

In some respects this new FTC action against steel pricing departs from past actions. In this latest case, the FTC acted against virtually the entire industry, naming as respondents the American Iron & Steel Institute and its company members, and specifically singling out 26 producers representing 80 per cent of the nation's ingot capacity.

In the past, monopoly and price fixing actions in steel have been directed at individual companies, or at most a few at a time. The most outstanding example of this was the famous "Pittsburgh Plus" case in which the United States Steel Corp. and several of its subsidiaries were named respondents. This latter action, however, was actually directed against the entire industry, U. S. Steel and subsidiaries apparently being singled out for purposes of simplifying the action as far as possible. Incidentally, though this case was started in 1921, it still has not been finally adjudicated, one phase of it still being before the Third Circuit Court of Appeals at Philadelphia.

That the issue will be long-drawn out in event a cease and desist order is issued in the present action is taken for granted. There is the possibility, however, that before a final decision is reached the whole issue may be declared a dead horse in event the Supreme Court should sustain a decision of the Seventh Circuit Court of Appeals on Sept. 20, 1946, upholding as legal basing point pricing in the cement industry. The issue in the cement case largely parallels that in steel so that a favorable decision by the Supreme Court would possibly result in dropping the charges against the steel industry. Hearing of the cement case appeal is scheduled for this fall.

As shown in the chronology on page 47, steel pricing has been under attack since early in the century. This latest action of the FTC simply presses the campaign to force the industry to adopt straight f.o.b. mill pricing, though in the present situation some observers see the element of politics entering since the move is initiated simultaneously with other government actions against other industries concurrent with governmental efforts to drive prices down. In the case of steel, some authorities are inclined to view the FTC move a sort of "spite" action for producers' failure to withhold recent price advances in compliance with a request to do so by President Truman.

Steel pricing has undergone considerable change since 1924 when "Pittsburgh Plus" (single basing point) was knocked out. New basing points have been added from year to year. In 1938 the multiple basing principle was firmly established on a wide scale when price differentials at Chicago and Birmingham over Pittsburgh were eliminated by the U. S. Steel Corp. subsidiaries, which action was immediately followed by various independent producers establishing basing points at their own mills. As against a single basing point, Pittsburgh, prior to 1920, by 1927 there were something like 29 basing points and by 1938 the number had increased to 48. Today it is estimated there are about 80 major products basing points at which prices are based, though all products are not priced at the same points.

Market observers point out that with so many basing points steel prices have become more or less standardized, this being because steel capacity at some producing centers is in excess of consuming demand at immediately adjacent producers' plants. The overflow competing with steel produced at distant points must meet the prices quoted by local mills. This results in absorption of freight by outside mills, bringing smaller net return on shipments from a distant steel plant than on business booked in a mill's home market.

Ordinarily the basing point system of

pricing operates to the advantage of consumers in that it prevents monopoly of a local market by local producing interests, opening to the buyer numerous sources of supply regardless of location of producing mills. Elimination of the basing point practice, it is held, would demoralize the markets and result in excess steel capacity at some long-established producing points. Further, manufacturers located disadvantageously with respect to steel supply would be forced to move closer to supply sources in order to be competitive with more favorably situated manufacturers in the same line of activity.

Actually, however, in times of short supply and absence of intense competition for orders, the basing point system does not operate 100 per cent. Since the end of the war this point has been very forcibly demonstrated in the withdrawal of many producing mills of various products from certain market areas because of reluctance to absorb freight at a time when sufficient business was available close to their plants to take up their entire output. Such withdrawals have been inconvenient for many consumers who thus have been forced to search out new supply sources at a time when it was virtually impossible to make a new connection because of the booked-up condition of all the mills.

Whether mills withdrawing from certain market areas in the tight supply situation will resume selling in these areas when balance between supply and demand has been struck in the affected products, of course, is unknown. Expectations are they will, but should f.o.b. mill pricing be forced on the industry, as suggested in the FTC action, resumption of nation-wide distribution by individual mills would be made doubly difficult since they could not hope to reach into areas distant from their plants on a competitive price basis with local producers.

This withdrawal from markets is still going on, and at the same time producers are tending to more and more depart from certain arbitrary bases in favor of pricing products based on the nearest basing point. The most recent instance of this latter involves the Carnegie-Illinois Steel Corp. which has revised its sales policy to meet the arbitrary prices on carbon bars at Detroit and eastern Michigan for only the size range produced, as follows: Rounds, squares and round cornered squares, up to 3½ in. inclusive; hexagons, up to 1 3/4 in.; and all standard sizes of flats. For sizes outside the above ranges and all other bar items, the nearest basing point now applies within the range of sizes produced. This, accordingly, restricts the basing point setup on bars.

Distribution of bessemer screw stock also has been restricted to Pittsburgh, Youngstown, Chicago and Gary basing points, within size ranges produced at the various points. Thus, Buffalo and Birmingham no longer are recognized as bases for bessemer bar stock. Carnegie also has discontinued selling rerolling and forging quality semifinished steel items on the Detroit and eastern Michigan arbitrary prices.

Federal Trade Commission's charges of price collusion among producers would not seem to be borne out by recent developments price-wise in the market. The most recent general steel price increase, effected around Aug. 1, was not uniform throughout the industry. Actually, dual base prices were set up on a number of products as a result of the absence of uniformity between independent producers and United States Steel Corp. subsidiaries. Increases by the latter were announced several days after leading independent producers had taken action, lower prices being named on a number of products than had been announced by the independents. For instance, galvanized sheets were quoted by U. S. Steel $2 per ton under the independents, enameling sheets $1 less, long ternes $4 less, wire rods $1 less, skelp $1 less, blooms, billets and slabs for rerolling $5 less, and forging quality blooms, billets and slabs $3 less.

Just what significance should be attached to these price spreads is not clear, but it is certain they will be pointed to as illustrative of independent action in pricing among steel producers.

CHRONOLOGY OF STEEL BASING POINT SYSTEM SINCE GOVERNMENT ATTACK STARTED

Sept., 1908—Informal complaint by Birmingham consumers because United States Steel Corp. sells "bars and plates on a Pittsburgh price basis."

Sept. 1, 1917—War Industries Board establishes Chicago base price on plates, shapes and bars.

June 12, 1918—E. H. Gary and presidents of 15 steel companies meet in Duluth to discuss complaints on "Pittsburgh Plus."

July 1, 1918—War Industries Board abandons Chicago base and restores Pittsburgh base.

Jan. 24, 1919 — Western Association of Rolled Steel Consumers organized.

July 9, 1919—At suggestion of Judge E. H. Gary, representatives of Western association meet with him before the Federal Trade Commission in Washington.

Aug. 1, 1919—Western association files application for complaint against United States Steel Corp., Inland Steel Co., Interstate Iron & Steel Co., and Steel & Tube Co. of America on grounds that "Pittsburgh Plus" violates Sect. 5 of Federal Trade Act and Sect. 2 of Clayton Act.

Aug. 22, 1919—Superior, Wis., Commercial Club and later other organizations filed similar applications for complaint.

Dec. 2, 1919—Preliminary hearings held in Washington.

July 24, 1920—Application for issuance of complaint denied.

Aug. 1, 1920—Western Association applies for a rehearing.

Sept. 20, 1920—Request granted.

Nov. 15-17; Dec. 6-9, 1920—Rehearings held.

April 30, 1921 — FTC issues complaint against U. S. Steel Corp. and subsidiaries.

June 2, 1921—Respondent files an answer to complaint.

Nov. 30, 1921—FTC files amended complaint.

Dec. 31, 1921—Respondent serves answer to amended complaint.

March 4, 1922—FTC files second amended complaint, after which testimony was heard at many points in the United States.

March 29, 1924—Examiners' report issued.

June 10, 1924—Respondents file briefs.

July 23, 1924—"Cease and Desist" order issued by FTC.

July, 1938—Price relationships disrupted. Many steel quotation differentials eliminated over Pittsburgh at important centers, particularly at Birmingham and Chicago. New basing points established, corresponding to Pittsburgh, at Sparrows Point, Md., Buffalo, Cleveland and Middletown, O.

June, 1938—Department of Justice starts investigation into basing point pricing systems of several industries, including steel.

June, 1938—Congress adjourns without taking action on a bill introduced to outlaw steel basing point system.

March, 1938-Feb., 1939 — Temporary National Economic Committee investigates basing point system.

Aug., 1947—FTC charges American Iron & Steel Institute and member companies with monopolistic practices, including price fixing.

Chronology of Other Government Action Against the Steel Industry

1912-1920—Monopoly charges instituted in 1912 by the Department of Justice against U. S. Steel Corp. decided in favor of U. S. Steel in 1920.

Dec., 1918—FTC charges National Bridge Co. with unfair practices.

1933-35—Era of NRA.

March, 1934—FTC charges that steel price code under NRA dictated by American Iron & Steel Institute. Charges dropped after NRA declared unconstitutional.

May, 1935—NRA declared unconstitutional by Supreme Court.

Feb., 1935—Republic Steel Corp. wins a trust suit concerning its purchase of Corrigan-McKinney Steel Co. in Cleveland.

April, 1937—FTC issues complaint against 35 soil pipe companies and the Cast Iron Soil Pipe Association, Birmingham, charging the companies and the association were using a Birmingham plus basing system as a means of price control.

April, 1937 — FTC issues a complaint against Institute of Tubular-Split & Outside Pronged Rivet Manufacturers, Waupun, Wis., on charges of restraint of trade.

Jan., 1941—FTC files complaint against Wire Rope & Strand Manufacturers Association, Washington, on charges of price control.

Feb., 1945—U. S. Department of Justice wins case in which it charged unlawful price fixing in sales of stainless steel by 18 steel companies and six company officials. Fines of $10,000 each levied by U. S. District Court at Trenton, N. J., which accepted pleas of "no contest."

Oct., 1945—FTC serves notice that it will resume various monopoly proceedings postponed because of the war.

1947—Senate committee investigates gray market steel operations, steel shortages, etc.

Good Volume of New Tool Orders Received in July

Value exceeded only once in last ten months. Shipments fall to postwar low because of vacation closings

ORDERING of new machine tools held to a surprisingly high level in July considering that many buyers are awaiting the showing of new models at the Dodge-Chicago plant later this month at the machine tool show.

Although dollar volume of new firm orders received by the tool building industry as reported to the National Machine Tool Builders' Association declined 4 per cent from the June peak, which was the highest point which had been reached in nine months, the value of July orders was well in excess of that during each of the previous months this year, June excepted. Unit volume, as was the case in June, was lower than at any time since the war.

Due in large measure to vacation closings of tool builders' plants as well as customers' receiving departments during the month, shipments of new tools fell to the lowest level since the war's end. Estimated at $18,663,000, or 23 per cent below the industry's deliveries in June, shipments were substantially less than new orders, and, coupled with a 59-per cent decline in order cancellations, served to reverse the declining trend in the industry's order backlog.

Foreign Sales at Low Level

Foreign ordering, which is now feeling the pinch of growing dollar shortages, increased slightly over the previous month as to dollar volume, units and as a percentage of total industry orders, but, with the exception of June, was lower percentagewise than it had been since the war's end.

Still affecting the new tool market is the availability of certain types of machinery from War Assets Administration inventories. Indicative of the effects of these surpluses on builders and of the generally unsettled economic conditions causing some potential customers to defer investing substantial amounts in new tools is the recent report by Bullard Co., Bridgeport, Conn., stating that the combination of these factors had reduced the company's volume in the first half of the year, with a resulting small operating loss. The company stated it could trace a direct loss of $1 million in sales thus far this year to competition from its own machines in the surplus tool market.

REPARATION: Marked for reparation, this punch press operated by a Japanese woman in the First Tokyo Military Arsenal is part of the machinery expected to be declared surplus to Japan's economic and industrial needs. The machines are currently being used to make goods for Japanese consumption. NEA photo

Study Shows Construction Machinery Labor Productivity Cut 7 Per Cent During War

AN INCREASE of approximately 7 per cent in the average number of factory man-hours required per unit of output of selected types of construction machinery occurred in the period from 1939 through 1945, according to the Bureau of Labor Statistics' recently published study of the industry.

The report is the latest in a series presenting annual data on trends in man-hours expended per unit of product for various industries for which productivity information has not previously been available, and deals with 23 products. These constitute nine-tenths of the industry's output in value in both the base year, 1939, and in the period from July, 1945, to June, 1946.

Sorted into eight product groups, the 23 products come under the following classifications: Tractor-mounted construction equipment, including bulldozers and cranes; specialized construction machinery, such as trenchers, road rollers, bucket loaders; construction material mixers, pavers and spreaders; construction material process equipment, such as portable crushers of various types; power cranes, shovels, draglines, etc., and attachments; scrapers, maintainers and graders; drilling and boring machinery and track-laying tractors.

Because of the applicability of many of the industry's products for war purposes, it experienced great expansion in the period covered by the report. In 1939 its output was valued at a little more than $173 million and it employed approximately 25,000. At the peak of its war operations in 1944 the industry's shipments were valued at more than five times the 1939 level and employment had tripled. Overall production rapidly declined in 1945 and by 1946 the industry was operating at a rate less than two-fifths of the wartime peak, although both production and employment were still more than double prewar levels.

To a large extent the trend of man-hours required per unit produced reflected the influences which were exerted on the industry during the war period. Between 1939 and 1941 the index declined approximately 2 per cent as rapid increases in production made possible reductions in man-hours per unit of product. After 1941 the index rose steadily through 1945, the increase averaging about 2 per cent a year. In contrast to these figures, which include

oth direct and indirect man-hours re-uired, the index for direct production abor only (chiefly machining, metal-vorking and assembly and excluding verhead functions) varied little, staying ractically constant until 1942 and in-reasing only about 1 per cent by 1945, vith the peak raise of 3 per cent occurr-ng in 1943.

The increases in efficiency which were ealized for all products where high roduction volume was maintained hroughout the period were offset by a ombination of factors as the war pro-ressed. One important factor was a eneral decline in the average skill of he work force as trained employees vere lost and replaced by inexperienced vorkers. Materials and parts shortages nd delays in deliveries caused disrup-ons and these difficulties caused sizable ncreases in the amount of labor re-uired to procure, handle, and store ma-erials. Indirect man-hour requirements ose substantially because of unavoid-ble increases in maintenance, super-isory, machine set-up, inspection and ontrol staffs.

Maintaining production efficiency as ell as was accomplished is explained y the full utilization of high-produc-on machines, standardized products, epetitive operations permitting exten-ve employment of jigs, fixtures and ther labor-saving devices. Changes in achinery and production methods over he period generally constituted the most nportant of the factors affecting the evel of man-hour requirements. The re-ort cites that while the overall trend in nit man-hour requirements was unfavor-ble during the war because of other actors, improvements in equipment and ork methods served to prevent much harper declines in productivity than ere experienced.

Certain of the advances which were ade in engineering and manufacturing ethods can be used in the postwar eriod, the report points out; however, s civilian specifications deviate from ose which could be used on a large umber of machines built for war use, he beneficial results of standardization re to some extent nullified. Following he war period, too, extensive changes in roduct design are returning as a charac-eristic of the industry.

Order Volume for Electric Industrial Trucks Declines

Domestic bookings for electric in-ustrial trucks and tractors during June owed a decline in dollar volume.

Net value of chassis was $956,167, ompared with $1,146,647 in May, the lectric Industrial Truck Association, hicago, reported. The June bookings overed 232 units.

Manufacturers' Group Buys Phoenix Iron Co. To Assure Adequate Supply of Steel

TO ASSURE themselves of a steel supply, 25 manufacturers banded together in a syndicate known as the Phoenix-Apollo Steel Co. have purchased the Phoenix Iron Co.'s steelworks at Phoenixville, Pa.

Purchase price was approximately $4 million, according to the group's president, Arnold H. Maremont, who originated the idea of a syndicate and organized it. He is executive vice president of Maremont Automotive Products Inc., Chicago.

Only last winter when the group was organized it purchased the Apollo Steel Co., Apollo, Pa. The Apollo sheet mill will be supplied with sheet bars from the Phoenix company mill, which has a monthly ingot capacity of 30,000 tons. Apollo is near Pittsburgh, while Phoenixville is near Philadelphia. The new acquisition completes a program for meeting the steel needs of the syndicate's 25 manufacturers who are located from coast to coast. Both mills have a total appraised value of $11 million.

It was understood that purchase of the Phoenix Iron Co. included its subsidiary, Phoenix Bridge Co.

The Phoenix mill, which has six open-hearth furnaces and three rolling mills, will begin operations under the new owners Sept. 15.

Believes Shortage Will Last

Commenting on the purchase, Mr. Maremont said, "the mill was purchased in the conviction that a steel shortage exists and that it will be of three or four years' duration, at least." He added that the Phoenix mill will provide enough steel to enable all manufacturers in the group to operate at full capacity, and any steel that is excess will be sold to other consumers.

Management of the Phoenix mill will be retained. David Thomson, president of Phoenix Iron Co., will serve as general manager under the new ownership. Howard Keiser, formerly of the Portsmouth Division of Wheeling Steel Corp., is manager of the Apollo mill.

Officers of the syndicate, in addition to Mr. Maremont, are: Vice presidents—D. M. Houghton, chairman of Atlas Tack Corp., Fairhaven, Mass., and Frank Gibson, secretary of Gibson Refrigerator Co., Greenville, Mich. Secretary — Bernard Nath, Chicago attorney. Treasurer—Bernard Mitchell, Mitchell Mfg. Co., Chicago.

Stockholders of the syndicate are: Maremont Automotive Products Inc., H. E. Wolfson, president, Chicago; Steel Materials Corp., Francis S. Levien, president, New York; Prentiss-Wabers Products Co., R. S. Wiltrout, treasurer, Wisconsin Rapids, Wis.; Western Stove Co. Inc., Henry Honer, president, Culver City, Calif.; Mitchell Mfg. Co., Bernard A. Mitchell, president, Chicago; Advertising Metal Display Co., H. H. Krueger, president, Chicago.

Proctor & Schwartz Inc., E. B. Ayres Jr., vice president, Philadelphia; Accurate Perforating Co., Ralph Cohen, Chicago; Pan American Trade Development Corp., F. G. Hecht, vice president, New York; Kroehler Mfg. Co., M. E. Stauffer, president, Naperville, Ill.; Chicago Curtain Stretcher Co., C. A. Anderson, vice president, Chicago; Welbilt Stove Co. Inc., M. W. Morris, president, Maspeth, N. Y.; Electro Mfg. Corp., Victor Nemeroff, president, Chicago.

A P Parts Corp., R. G. Rule, president, Toledo, O.; B & R Iron & Metal Co. Inc., Semour Roth, vice president, Syracuse, N. Y.; Keystone Steel Products Corp., Louis Greenberg, president, Brooklyn, N. Y.; Standard Pressed Steel Co., J. F. Roberts, secretary, Jenkintown, Pa.; Atlas Tack Corp., D. M. Houghton, chairman, Fairhaven, Mass.; Oakland Sheet Metal Supply Co., J. Leson, proprietor, Oakland, Calif.

Gibson Refrigerator Co., F. S. Gibson Jr., secretary-treasurer, Greenville, Mich.; Poloron Products Co. Inc., R. P. Brown, president, New Rochelle, N. Y.; Crescent Tool & Die Co., Henry F. Gefvert, president, Chicago; Webster-Chicago Corp., H. R. McClosky, Chicago; Pioneer Gen-E-Motor Corp., D. E. Bright, president, Chicago; Grand Sheet Metal Works, R. Uslander, president, Chicago.

July Pig Iron Production Drops to 82.3 Per Cent Rate

Production of pig iron, including ferromanganese and spiegeleisen, declined during July to 4,584,614 net tons, or 82.3 per cent of capacity, from 4,809,809 tons or 89 per cent, in June, according to the American Iron & Steel Institute, New York. Blast furnace operations were curtailed at the beginning of July due to the coal miners' holiday and the uncertain outlook for future coal supplies.

Total production for the first seven months of the year was 34,070,417 tons, or 89.3 per cent of capacity, compared with 22,512,098 tons, or 57.5 per cent of capacity, in the like 1946 period when strikes caused a curtailment of operations.

Pig iron accounted for 4,531,619 tons of last month's output while ferromanganese and spiegeleisen accounted for 52,995 tons.

Windows of Washington

By E. C. KREUTZBERG — *Washington Editor, STEEL*

Gains in congressional efficiency reflected in work of first session of 80th Congress under Legislative Reorganization Act, but in judgment of one of the authors of the law only one of three principal objectives was carried out

CONGRESSIONAL efficiency made a clear gain in the first session of the 80th Congress under the Legislative Reorganization Act of 1946, but still has a long way to go.

That is the judgment of Rep. A. S. Mike Monroney (Dem., Okla.) who, with former Senator Robert M. La Follette Jr. (Prog., Wis.), wrote the act. The score, he says, is "50-50."

Only one of three principal objectives was carried out: Standing committees were reduced from 48 to 19 in the House and from 33 to 15 in the Senate. Part of this gain was nullified by the creation of many subcommittees.

Second principal objective, that of furnishing Congress with skilled technical and research staffs, was only partially reached. It was hard to find qualified men, and hard to learn how to use them effectively. There was considerable laxity in allowing unqualified personnel to hold the professional staff jobs in some committees.

Little Done on Third Objective

The third objective, perhaps the most important, was virtually lost sight of. This was the need for the strengthening of Congress in handling the vast fiscal powers of the federal purse.

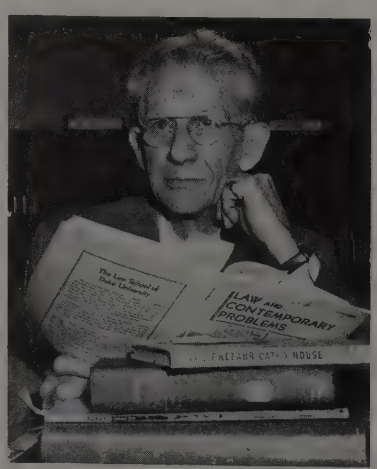
Mr. Monroney compliments the recently ended session for its full legislative performance. The first session of the 80th Congress passed 1790 bills, which compares with 857 passed by the first session of the 79th Congress——or more than twice as many.

The House Armed Services Committee created 11 subcommittees and the House Foreign Affairs Committee an equal number. Chances are, said Mr. Monroney, that many of these subcommittees will be dismissed, and very properly so. By contrast, the House Ways & Means and Banking & Currency committees operated only with full committee sessions, and with splendid results. He condemns the House Appropriations Committee as being the only one to hold closed hearings, and for its failure to provide itself with the staff needed to do a real job on the world's biggest financial institution—the $35 billion government of the United States. Because of this failure, says Mr. Monroney, the House Appropriations Committee had far less than the complete knowledge it needed to perform its task.

It was the lack of knowledge, he says, which was responsible for the lamentable failure of the Congress to set up a Legislative Budget and to adjourn without acting on its budget resolution.

"To make this valuable provision effective," says Mr. Monroney, "a skilled expert staff should confer often with the agency budget officers while their needs are being formulated, and follow through with careful observation until the needs are fixed in the President's budget. With this advance staff work, the Legislative Budget would become more than a 'pious hope'."

Another unfortunate omission was the failure to provide a staff in the comptroller general's office to analyze government expenditures. This provision must be carried out to "enable Congress to determine whether public funds have been economically and efficiently administered and expended." An improvement should be noted next year when the comptroller general will be ready with results of a study to indicate what useless and obsolete restrictions in appropriation bills may be eliminated in future. The Congress indulged on a much smaller scale in the obnoxious practice of adding legislative amendments to appropriation bills. On the other hand, Congress did little in the recent session to discourage agencies from coming in and asking for deficiency appropriations.



REP. RALPH A. GAMBLE

Representative Gamble (Rep., N Y.) has been elected chairman of a joint congressional committee which will investigate the housing shortage. NEA photo

The Legislative Reorganization Act should be amended from time to time to meet needs as they develop. The House and Senate Judiciary Committees now are overloaded with work and this situation should be cured. Too, the Regulation of Lobbying section should be made more effective. Only one-quarter of the 800 registered lobbyists spent $2,692,869 to influence Congress in the session just ended—and this appears to be only a small portion of the total spent for this purpose but mostly unreported.

Mr. Monroney says that running the District of Columbia takes up too much of the time of the Congress and this task should be turned over to a city council.

Other needed changes, he says, are modification of the present seniority rules, elimination of the filibuster, abolition of the Rules Committee's veto power over legislation from other committees, creation of a question and answer period for cabinet members before Congress.

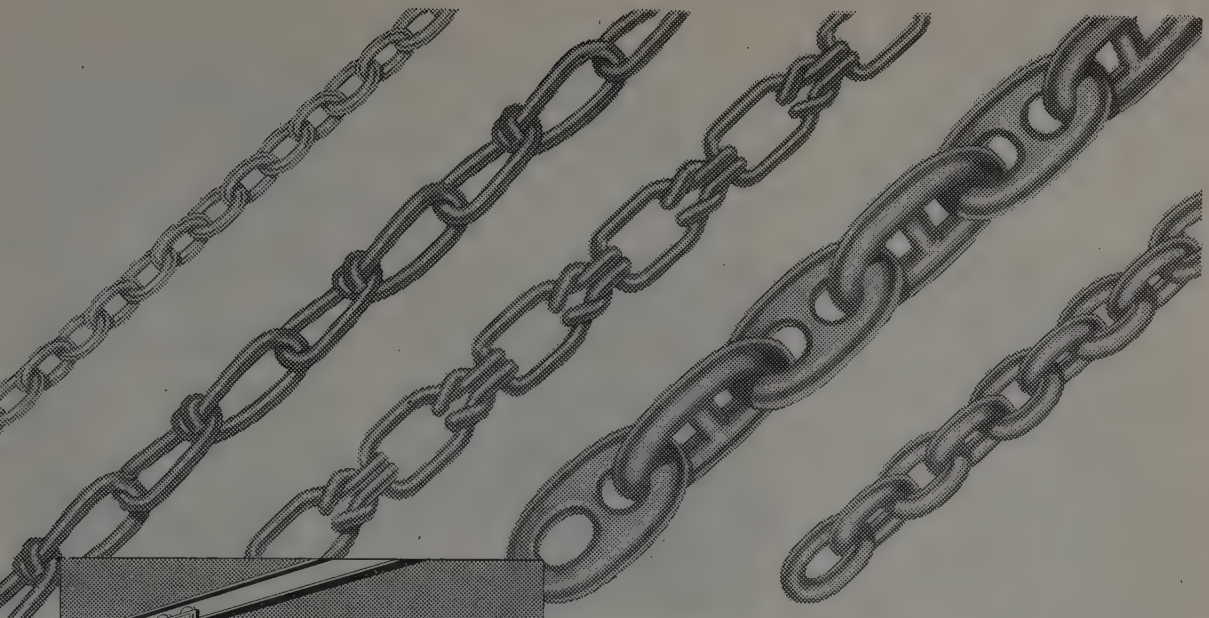
Mr. Monroney is not alone in urging the need for further attention to the matter of lobbying. With lobbyists having as much influence as at present in shaping and pushing legislation, many congressmen have called for an investigation, particularly to ascertain why many individuals whom they regard as lobbyists failed to register.

Incidentally, the biggest lobbying expenses reported were those of the American Federation of Labor. This outfit spent $819,648 in the first half of 1947 fighting the Taft-Hartley Act. Other heavy spenders for lobbying purposes were the Committee for Constitutional Government Inc. (working for the Taft-Hartley Act, the loyalty bill and liberalized taxation) with $248,506; the Citizens Committee on Displaced Persons (working to gain admission for 400,000 D. P.'s from Europe) with $185,431; and the National Physicians Committee for Extension of Medical Service (organized to fight so-called "socialized" medicine) with $135,377.

Other expenditures reported included National Small Business Men's Association $66,906; Non-Basic Steel Co-ordinating Committee $28,536; National St. Lawrence Association $20,381. By far the majority of reporting lobbies spent less than $10,000 in the six-month period.

Summer Slump Postponed

Optimism over the economic outlook for the immediate future appears to be running high among officials of the Commerce Department. At any rate that's the impression one gets from a recent



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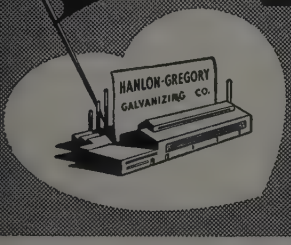


HANLON-GREGORY GALVANIZING COMPANY

Pittsburgh, Pennsylvania

news conference held by Ewan Clague, director of the Bureau of Labor Statistics.

Director Clague told the newsmen that the predicted summer slump has been indefinitely postponed and that current high prices contain nothing spectacular of an economy-wrecking nature.

Pointing out that employment topped 60 million in July for the second consecutive month, he declared that even a drastic drop in exports would not mean a corresponding slump in employment, holding that domestic demand can absorb a large part, if not all, of the difference. Only a complete collapse of the high export level, he said, could weaken the employment figures.

It appears summer unemployment reached a high of 2,600,000 in July but evidences already indicate this is receding, housing activity being an important factor in sustaining employment. Only five industries showed downward trends in employment due to other than seasonal factors in July. These were machine tools, furniture, radios and phonographs, tires and tubes, and aluminum manufacturing.

In the first six months of 1947, the Commerce Department reported, American manufacturers sold $81,300,000,000 worth of goods, 44 per cent more than in 1946. Maintenance of that rate, it is said, would result in sales well in excess of the wartime peak.

NLRB Assumes New Role

The National Labor Relations Board has completed reorganization of its staff to carry out the provisions of the Taft-Hartley Act. As of Aug. 22, the board assumed purely judicial duties instead of serving, under the Wagner Act, in prosecuting as well as judicial roles.

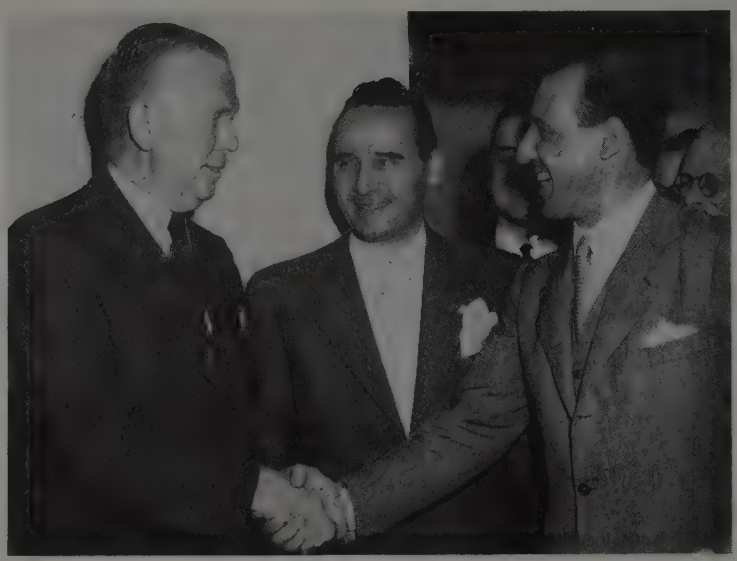
To enable it to perform its tasks as a tribunal, the board has appointed as its executive secretary Frank M. Kleiler who previously had been NLRB regional director at Pittsburgh. It has designated as solicitor and chief legal adviser, Herbert Fuchs, recently assistant general counsel.

The board also announced reappointment of Louis C. Silverberg as director of information.

Robert N. Denham, the new general counsel in charge of investigation and prosecution of cases arising from labor-management disputes under the Taft-Hartley Act, continues at work on reorganizing the NLRB field organization.

Rail Equipment Orders Huge

Railroads had on order July 1 new equipment calling for capital investment of nearly $1 billion, according to testimony filed last week with the Interstate Commerce Commission for consideration next month in support of the railroads' petition for an average 17 per cent hike in freight rates.



GETTING ACQUAINTED: U. S. Secretary of State George C. Marshall, left, shakes hands with Argentina's Foreign Minister Juan A. Bramuglia, right, after a "get acquainted" talk in the latter's apartment in Quitandinha, Brazil, scene of the Inter-American Defense Conference. In center is Oscar Ivanissevich, Argentine ambassador to the United States. NEA photo

Trade Practice Agreements

The Federal Trade Commission has revised its policy covering settlement of cases by trade practice conference and stipulation agreements.

The policy parallels for practice conference agreements, a similar statement previously issued, covering settlement of informal cases by stipulation agreements.

The statement outlines the commission's attitude with respect to matters covered by trade practice agreements. An important point in the commission's statement noted that "Trade practice conference rules have no force of law in themselves. Violations of these rules are not proceeded against directly. The commission can proceed only on a charge of violation of the law on which the rules are based."

How Many Guns for Forrestal?

The Navy is pondering a matter peculiar to its own traditions, arising from the merger of the armed services, and in which it is not likely to get much help from other less protocol-minded branches.

The new Secretary of Defense, James Forrestal, gets a salute of how many guns?

If the President of the United States gets 21 guns, and the Secretary of Navy gets 19, it is going to take some close figuring to fire a salute that will not give the new defense head the same honor as the President and visiting royalty now receives, and at the same time will give him the edge over subordinate, official heads of the service branches.

Thus, the service merger is not all a matter of co-ordinated purchases.

Navy Ponders Surplus Fleet

Washington is considering what to do with surplus fleet units, for which it may suffer an indefinite lack of manpower, due to expiring enlistments, and failure to enlist sufficient new personnel. Ships may be brought home for laying away, as has been done with numerous others in the postwar years.

OTS Offers Report

Intricate dies employing a number of independent punches fitted in die subpress were used by the Germans in pressing rifle and gun parts from powdered metals, according to a British report on German powder metallurgy now on sale by the Office of Technical Services, Department of Commerce. Iron powders were also used for porous iron bushings, bearings, sliding parts, gears, bullet slugs, precision parts for rifles and diamond impregnated iron lapping wheels.

The entire assembly was designed for use in a standard type of hydraulic press with top and bottom rams.

Deterrents to Mining Enterprise Will Be Aired at Texas Gathering

American Mining Congress expects over 1000 to attend its annual convention in El Paso, Oct. 27-29. Program subjects to include an examination of government taxes, tariff, stockpiling and public land policies as they effect mining

DETERRENTS to mining enterprise at must be removed, and policies that ust be adopted by the government and e industry to assure continued efficient eration of the nation's metal and non-etallic mines and development of ore serves for the future will be fully dis-ssed by over 1000 mining men when ey meet at El Paso, Tex., Oct. 27-29 at ssions of the annual metal mining con-ntion of the American Mining Con-ess.

The program for the meeting has been veloped by an industry-wide commit-e, headed by Donald H. McLaughlin, esident of Homestake Mining Co., San ancisco.

Prominent among the subjects to be nsidered are: Encouragement to ex-ploration; discovery and development by ivate enterprise of new ore-bodies and ditional reserves; tax, tariff, stockpil-g and public land policies of the gov-nment as they affect mining; industrial ations and labor legislation; problems attracting and holding skilled manpow-safety programs; mechanization and proved mining methods for greater oductivity and lower costs; small mine erators; future outlook for the base etals and for silver and gold; progress milling methods to increase available e reserves; and new developments and provements in underground and open-mining operations to attain greater iciency.

Speakers at the gathering will include itors from Mexico who will describe esent-day mining activities and condi-ns in that country, a number of gov-nment officials who will discuss the vernment's attitudes and interests in ning, and leaders in the mining indus-itself who will focus the attention of e industry and of the public upon min-'s requirements from the standpoint public policies to meet future needs. The meeting is sponsored by the West-n Division of the American Mining ngress of which H. M. Lavender, vice sident and general manager of Phelps dge Corp., Douglas, Ariz., is chairman.

avy Industrial Association eets in New York, Sept. 24

Secretary of Defense James Forrestal and Sen. Leverett Saltonstall will be the principal speakers at the fourth annual dinner of the Navy Industrial Association, Sept. 24, at the Waldorf-Astoria Hotel, New York.

Sen. Saltonstall, former governor of Massachusetts and now senior senator from that state, is a member of the Senate Armed Services Committee and the Senate Appropriations Committee.

Also featured at the gathering will be elections of trustees and officers and various forums at which Naval officers will discuss the manner in which the Navy plans to operate during the coming year.

Hydraulics Conference Has Chicago Meeting, Oct. 16-17

The third annual meeting of the National Conference on Industrial Hydraulics will be held on Oct. 16 and 17 at the Hotel Continental in Chicago.

This conference is sponsored by Armour Research Foundation and the Graduate School of Illinois Institute of Technology in co-operation with Western Society of Engineers and the Chicago sections of Society of Automotive Engineers, American Society of Civil Engineers and American Society of Mechanical Engineers.

Highlighting the technical sessions will be a consideration of cavitation and its effects on hydraulics.

Electronics Conference To Meet in Chicago, Nov. 3-5

Dr. George D. Stoddard, new president of the University of Illinois, will deliver the keynote address at the National Electronics Conference to be held at the Edgewater Beach Hotel in Chicago, Nov. 3-5. Walter Evans, vice president of the Westinghouse Electric Corp., will also speak.

Major emphasis at the conference will be on industrial electronics.

Reliable Spring Celebrates Its Tenth Anniversary

Reliable Spring & Wire Forms Co., Cleveland, manufacturer of springs, wire forms and light stampings, recently celebrated the tenth anniversary of its founding with a company outing and holiday.

Starting with an organization of just three people in 1937, when most of its production was done by hand, the company today employs about 100 and has a full range of automatic spring-making machinery.

Calendar of Meetings . . .

Sept. 1-4, American Society of Mechanical Engineers: Fall meeting, Hotel Utah, Salt Lake City, Utah.

Sept. 5-7, Institute of Scrap Iron & Steel Inc.: Southern chapter meeting, Wrightsville Beach, N. C., with Ocean Terrace Hotel as headquarters. Institute executive secretary is Edwin C. Barringer, 1626 K St. NW, Washington.

Sept. 8-12, Instrument Society of America: Second national instrument conference and exhibit, Stevens Hotel, Chicago. Richard Rimbach, 1117 Wolfendale St., Pittsburgh 12, executive secretary.

Sept. 10-12, Porcelain Enamel Institute: Ninth annual forum, Ohio State University, Columbus, O.

Sept. 12-13, American Foundrymen's Association: Regional conference of Eastern Canada and Newfoundland chapter at Sherbrooke, Que. Chapter chairman is A. E. Cartwright, Crane Ltd., Montreal.

Sept. 14-20, Eastern States Exposition: Industrial Arts Bldg., Springfield, Mass. General manager is Charles A. Nash.

Sept. 15-19, American Chemical Society: National meeting in New York. Society headquarters are at 60 E. 42nd St., New York.

Sept. 17-18, Society of Automotive Engineers: Tractor meeting, Hotel Schroeder, Milwaukee.

Sept. 17-26, National Machine Tool Builders' Association: Machine Tool Show, Dodge-Chicago plant, Chicago. Machine Tool Congress in connection with show to be held in various Chicago hotels. Association headquarters are at 10525 Carnegie, Cleveland.

Sept. 18-20, National Association of Foremen: 24th annual meeting in Los Angeles. Headquarters will be at the Philharmonic Auditorium and the Biltmore Hotel.

Sept. 22-25, Association of Iron & Steel Engineers: Annual meeting, Hotel William Penn, Pittsburgh.

Sept. 23-26, Institute of Metals (British): 39th annual autumn meeting, Glasgow, Scotland. Institute secretary is S. C. Guillan, 4 Grosvenor Gardens, London.

Sept. 24, Navy Industrial Association: 4th annual dinner meeting, Waldorf-Astoria, New York.

Sept. 27, Symposium on Modern Metal Protection: Sponsored jointly by Cleveland sections of American Chemical Society, Electrochemical Society and American Institute of Chemical Engineers at Hotel Carter, Cleveland.

Oct. 2-3, Gray Iron Founders' Society: 19th annual convention, Hotel Schroeder, Milwaukee. Society headquarters are at 1010 Public Square Bldg., Cleveland.

Oct. 2-4, Society of Automotive Engineers: Autumn aeronautic meeting, Biltmore Hotel, Los Angeles.

Oct. 6-7, Packaging Machinery Manufacturers Institute: 15th annual meeting, Hotel Sheraton, Springfield, Mass. Institute headquarters are at 342 Madison Ave., New York.

Oct. 6-8, American Society of Mechanical Engineers: Petroleum mechanical engineering conference, Houston, Tex.

Oct. 9-10, Porcelain Enamel Institute: Annual meeting, Cleveland.

Oct. 15-18, Electrochemical Society: Boston Congress, Copley-Plaza Hotel. Society secretary is Colin G. Fink, 3000 Broadway, New York.

British Steel Socialization Undecided

BIRMINGHAM, ENG.

DURING the crisis of recent days much has been said regarding nationalization of the British steel industry, but it now appears the final decision on this important move has been postponed until Parliament reassembles in the fall.

It is not known whether the whole industry will be taken over if nationalization comes, but it seems unlikely that this government is prepared to absorb the whole of the trade with its tremendous ramifications. Threats of nationalization, however, will not deter producers from putting forth maximum efforts to make the steel so urgently needed throughout the country.

Production figures for the first seven months of the year indicate how far short of target output has fallen. For that period output totaled 7,040,000 tons, so that if the government goal of 12½ million tons for the year is to be achieved, production in the last five months of 1947 will have to be at the annual rate of 13½ million tons. The drop in production in July was due to the shortage of coal and also to annual six-day vacations which this year tended to fall in July.

Number of Furnaces in Blast Drops

Expansion of output will largely depend on securing additional production of pig iron. There are only 91 furnaces in blast compared with 99 in last January. Two additional furnaces came into operation at the beginning of August and six others are to be blown in before the end of September. Of these, two, one at the Consett Iron Co.'s works and the other at Colville's, are new furnaces of the latest type forming part of the modernization program.

The serious position in which the shipbuilding industry finds itself was emphasized by Sir Robert Micklen, chairman of Vickers Armstrong Ltd., recently. The industry, he said, is subject to delays and frustrations, one of the principal reasons being that the government list of priorities does not include shipbuilding, and the whole program of construction throughout the country is being seriously handicapped. This is indicated by the launchings on the Clyde for the first half of the year which totalled 41 vessels, aggregating 156,410 tons and, unless more steel, timber, electrical equipment and other materials can be obtained, the 1947 tonnage will not greatly exceed 350,000. After the first world war, in 1920, output amounted to 779,000 tons.

Unemployment is on the increase and shipbuilders have been turning away orders despite the fact that slightly better supplies of steel have been available.

Parliament to consider plan at fall session. Efforts being made to raise industry's output, currently hampered by lack of pig iron

Even now most firms receive less than 60 per cent of their requirements and the extra steel, instead of going to new ships, has been used in repairs and conversions.

From the point of view of the consumer the supply position is regarded as chaotic in the engineering industry, and a bulletin of the Engineering Association says that any firm which is not manufacturing priority goods, and even some that are, are short of materials because of the long deliveries being quoted throughout the steel trade. The consequence is that firms are ordering considerably in excess of their immediate needs.

Scarcity Extends to All Steels

Deep drawing, cold forging and construction steel are all in short supply, and apart from the fuel situation, there appears to be insufficient capacity in this country to produce the first two special quality steels. Certain sectional steel materials of commonly used sizes which have always been readily available are now almost unobtainable, and although suppliers have been able to make fair deliveries until recently, it is only rarely now that they can cover requirements. The position is even worse as regards channel, girder and angle sections. The result is that it becomes necessary to buy small quantities of steel from different suppliers to complete any one contract and it is invariably found that use has to be made of sections much larger than required, thus forcing considerable loss of time, added expense and waste of material.

A Merseyside firm was recently allocated 75 per cent of requirements of electric steel, and yet managed to obtain delivery of only 55 per cent. Teesside manufacturers say that continued shortage of steel must result in serious unemployment, as the cuts affect principally sections of the industry having the largest labor forces. Some managements urge that all bulk purchasing by government departments should be abolished and manufacturers with their specialized knowledge allowed to do this work again. Private enterprise, it is suggested, could get more steel from Belgium.

Replying to a question in the House of Commons as to what prospects there are of increasing production of tin plate during 1948, Minister of Supply Wilmot stated that if adequate fuel supplies were available, an increase of between 5 and 10 per cent above the present level of production should be possible.

Johns-Manville Official Urges Revival of Germany

Nothing can be accomplished in either Germany or western Europe under the Marshall plan unless the United States puts into effect "an entirely new policy for the revival of Germany," Lewis H. Brown, chairman, Johns-Manville Corp., New York, declared recently following a two-month trip to that country to inspect its industrial potential.

Stimulation of German industry by the following methods was urged by Mr. Brown: (1) Increasing production of coal in the Ruhr through use of additional food rations as incentives to miners; (2) placing a moratorium on annual shipments of 10 million tons of coal out of Germany so that these supplies could be used domestically; (3) recognizing that this moratorium can take place only if western Europe is again supplied with quantities of coal from Great Britain; (4) working out a five-year food plan allowing German food consumption to increase gradually, the United States and other nations guaranteeing supply of the basic diet of

British Steel and Pig Iron Production Rates Through July

(Tonnage figures according to the British Iron & Steel Federation)

Steel Ingots and Castings

	—1947—		—1946—	
	Weekly Average	Annual Rate	Weekly Average	Annual Rate
1st Quarter	216,000	11,231,000	242,600	12,617,000
2nd Qurter	244,100	12,694,000	252,100	13,111,000
June	254,000	13,206,000	239,900	12,475,000
July	211,700	11,007,000	226,000	11,759,000

Pig Iron

	—1947—		—1946—	
	Weekly Average	Annual Rate	Weekly Average	Annual Rate
1st Quarter	134,400	6,989,000	145,500	7,566,000
2nd Quarter	141,600	7,363,000	150,500	7,827,000
June	144,300	7,501,000	151,500	7,878,000
July	143,500	7,460,000	147,000	7,645,000

declining basis; and (5) making it ssible for Germany to rebuild produc- e capacity and exports fast enough to ke up the difference in this food arantee.

anadians in 1947 To Spend l Billion on Capital Goods

A mid-year survey of the investment entions of Canadian business for 47 shows that groups covered ex- ct to spend $1005 million on new pital goods during 1947, representing 37 per cent increase over similar ex- nditures in 1946.

The estimate for outlay on capital re- r and maintenance is 43 per cent in ess of the previous year. The survey, ently completed by the Economic Re- rch Branch of the Canadian De- rtment of Reconstruction & Supply, ows little change from forecasts made a similar one at the beginning of 47.

ritish Ford Automobile Vill Retail for $2993

Ford Motor Co. Ltd. of Britain has nounced that a new eight-cylinder, e-passenger sedan is in production, the t V-eight to be built in Britain since fore the war. Price, including pur- ase tax, is listed at $2993, according the announcement.

Company officials described the car as naracteristically British" in appearance th no suggestion of futuristic tenden- s in design. Average delivery time uld be about 18 months, company icials said.

Europe's Leading Steel Exporter, Belgo-Luxemburg, Boosts Output

South American and European countries turning to the Union for steel requirements, with export shipments for first half of 1947 56 per cent higher than for 1946's comparable period. Liege exposition opens

LIEGE, BELGIUM

TREND of average monthly steel production since the liberation of Belgium has been upward from January, 1945, when output was around 10,000 metric tons of steel ingots and castings. A peak was reached in October, 1946, with 236,000 tons, and, following a slight recession which took place in the winter, the upward trend was resumed in March, 1947, with the October record expected to be broken in the near future. Similar conditions apply to steel output of Luxemburg, the record having been reached in June with 147,000 metric tons.

Position of the Belgo-Luxemburg iron and steel export trade is good. The Union is presently the largest exporter in Europe. During the first six months of this year iron and steel exports were 1,066,124 metric tons, compared with 682,899 tons in the corresponding period of last year, an increase of 56 per cent. The principal markets in order of importance are: The Netherlands, Switzerland, Argentina, Norway, Denmark, Finland, Portugal, China, Sweden, and Egypt. The reason the Netherlands, Switzerland and Denmark have become such important customers is that these countries can no longer obtain their supplies from Germany as they did before the war. The other countries can be looked upon as traditional markets for the Belgo-Luxemburg Union.

The principal products exported in the first half of the year were as follows: Merchant bars 288,781 metric tons; structural steel 190,220; plates and sheets 162,296; hoops 79,193; wire rods 69,178; rails 56,744. At present there is an intensive demand from South America, which is believed caused by the inability of the United States to satisfy the considerable requirements of those countries. Belgian and Luxemburgian export prices are competitive and make up for the low prices quoted on the domestic market.

Official opening of the Scientific and Technical Exhibition organized by the Belgian Industrial Control was held recently at the beginning of the centennial celebration of the Association of Engineers from the Technical School of Liege. In addition to the exhibition, an international congress of engineering is being held. Prime Minister P. H. Spaak attended the opening of the exhibition with other government officials and representatives of the Liege corporation and of the university.

Opening speech was made by L. Lepage, director and general manager, S. A. Belge de l'Azote et des Produits Chimiques de Marly, president of the Association of Engineers from the school, and chairman of the centennial organization committee. He surveyed the efforts made in Belgium, and particularly in the Liege industrial region, toward reconstruction, and pointed out that the preparation for the celebration was begun in 1943 during the German occupation. Other speeches by the dean of the faculty of applied sciences at the university, Professor F. Campus, and by Premier Spaak emphasized that the exhibition was intended to show not only what the Belgian engineering profession had done in the past but also to demonstrate the future possibilities of modern engineering techniques.

Germany

The rise in iron and steel output starting at the beginning of the year has slowed down owing to unfavorable conditions generally. Steel output in the first half of this year is unlikely to exceed 1,600,000 metric tons. The present rate of output is about 225,000 tons per month.

lans To Increase German Production eopardized by Slated Plant Removals

DUSSELDORF, GERMANY

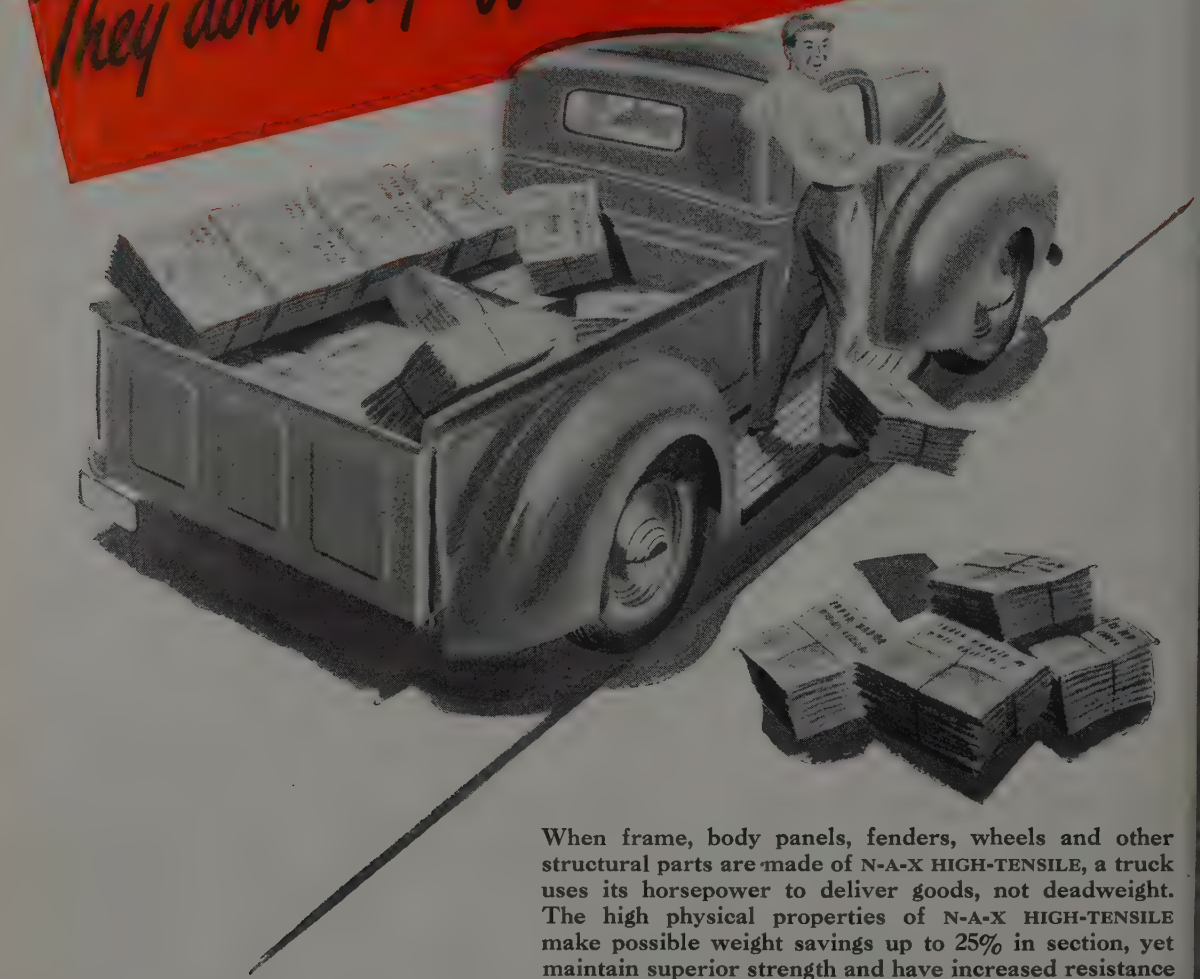
DISMANTLING of plants in Germany, l especially in this area, is proceeding a more rapid pace and some apprehen- n is expressed that the higher rates of ustrial production contemplated under Marshall plan will be jeopardized. portant key plants and key equipment eady have been removed, especially the steel industry.

In the American and British zones, 720 nts have been placed on the list for finite removal and an additional 1200 nts have been earmarked for possible noval. It also is well known that there sts an additional reserve list of plants ich could be dismantled at any time substituted for those on the first two s.

Plants on the lists include those which would be especially useful for peacetime production and have no use in making armaments. Even a plant making pocket combs may be removed if so desired.

Three mills for the production of seamless tubes, a mill for making welded tubes, a plate mill and two other rolling mills owned by Deutsch Roehrenwerke are on the removal list. In the case of the famous Friedrich Wilhelms Huette, not only the steelworks is earmarked, but also the blast furnaces. If these plants are eliminated, it is figured that Germany could not produce the 12 million tons of steel annually as envisaged under the revised industrial plan for the ravaged country.

They don't pay off on DEADWEIGHT



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UNIT OF NATIONAL STEEL CORPORATION

By A. H. ALLEN Detroit Editor, STEEL

Mirrors of Motordom

Agreement settling strike against Murray Corp. and obligating union to prevent unauthorized work stoppages may point way to settlements in other disputes where unions seek clauses of immunity from laws

DETROIT

ENDING of the 29-day strike at Murray Corp. of America also terminated the first test engineered by the UAW-CIO to obtain immunity from damage suits for contract violations under the Taft-Hartley Act, and also restored the flow of frames, seat cushion springs and body stampings to automobile builders. The lengthy strike had seriously interfered with Ford operations, had forced Studebaker to suspend passenger car production, including a new convertible model which will be unveiled shortly, and had made inroads on production of Dodge trucks.

In some reports describing the Murray settlement, it was erroneously stated the company "gave in" under union demands. Actually, Article IV of the agreement includes a definite commitment by the union that there will be no slowdowns or sitdowns during the life of the agreement; also that there will be no strikes whatever in connection with three classes of controversies, namely, (1) production standards, for which a special procedure is spelled out; (2) management's rights and functions as specified in the agreement, and (3) attempts to change or add to the agreement during its life. The union is liable in the event of an authorized strike over any one of these issues.

The union also agrees it will not authorize any strike on an issue not covered by these three classifications until grievance procedure has been exhausted, and the strike has been authorized by the international office of the union and at least 45 days have elapsed after filing of the grievance. Again, the union is liable if a strike is called in violation of this provision.

Further the union agrees to take certain measures to end any unauthorized work stoppages, including the posting of notices over union signatures and on company bulletin boards directing wildcat strikers to return to their jobs. Immunity from legal liability is granted only if the union takes the agreed steps to end unauthorized walkouts. Beyond this, the company retains the right to take disciplinary action against any employee who is involved in an unauthorized work stoppage. The union may appeal through grievance procedure but cannot authorize a strike over such an appeal until after 45 days. Finally the company agrees it will not lock out employees over any issue without at least five days of negotiations at the top level of the grievance procedure.

The Murray agreement follows the pattern of the International Harvester Co. union contract and may point the way to settlements in other disputes where the union is seeking "immunity" clauses. C. W. Avery, Murray president, says he believes the "agreement is a fair solution to a difficult problem. It provides that the union is fully responsible for failure to live up to its contract; it limits the union's legal liability to acts for which the union can reasonably be held responsible; it provides for management discipline of individuals for whose conduct the union is not responsible." In ten years of bargaining relations with the UAW-CIO, incidentallly, Murray has had only one authorized strike, the one which just ended.

It was just 40 seconds before midnight on Aug. 21, the hour the Taft-Hartley Act went into full effect, when signatures were affixed to a new two-year contract between Ford and the UAW-CIO. A protracted stalemate between negotiators was finally broken by the company offering two alternatives to union members—one a contract incorporating a pension plan together with a general 7-cent hourly increase and other economic benefits, the second a contract which includes a pattern 15-cent hourly increase, with 11½ cents as straight increase and the other 3½ cents to cover six paid holidays.

Reason for the alternative proposals is that discord suddenly developed in union ranks over the pension plan, with many, including a large proportion of younger employees, holding out for the pattern increase and no pension plan. Results of voting among 107,000 employees on their preference will be interesting to watch. Despite the fact Richard T. Leonard, head of the Ford UAW local, has worked hard for inclusion of a pension plan in the contract, there is good reason to believe the majority will vote otherwise and the retirement plan be scrapped. This would put Ford on a comparable basis with other manufacturers in the matter of wage boosts this year, and would allow the demand for a pension plan to be brought up again next year, perhaps in General Motors, Chrysler and other units of the industry as well. A year's wait is of little consequence to men who are many years from age 65, particularly when they can get that extra 8 cents an hour right now, in fact retroactive to May 31.

Automobile Production

Passenger Cars and Trucks—U. S. and Canada

Estimates by Ward's Automotive Reports

	1947	1946
January	373,872	126,082
February	399,717	84,109
March	441,793	140,738
April	449,388	248,108
May	390,629	247,620
June	418,919	216,637
July	397,926*	331,100
August		359,111
September		342,969
October		410,510
November		380,664
December		380,908
12 ms.		3,268,456

* Preliminary.

Estimates for week ended:

Aug. 9	79,452	77,825
Aug. 16	83,501	86,990
Aug. 23	84,739	89,360
Aug. 30	70,000	73,960

Rise in Costs Acknowledged

On the price front, Ford made no unorthodox moves, as some people were hoping the company would. Rather, it acknowledged the impact of higher labor and material costs and raised prices practically right down the line on most passenger cars and all trucks, from $20 to $97, or an average of 4.2 per cent. The boost came just a little over seven months after the $15-$50 cut in passenger car prices. It will not recover the amount of increased costs for the remainder of the year, but the company is taking a long-range view, hoping to absorb some increased costs and hoping some higher costs are abnormal.

In the category of abnormal costs has been the expenditure of millions beyond regular operating costs to maintain stable employment and to attain production schedules of less than 70 per cent of capacity, still falling short of planned schedules for the year by 135,000 units. As with other manufacturers, steel is a major headache at Ford, despite the cushioning effect of 15,000 tons of ingots produced every week in Ford open hearths. The company estimates it has spent an extra $5 million so far this year alone

AUTOS FOR EXPORT: Hundreds of crated motor vehicles awaiting export are stored in the Erie Railroad freight yards at Jersey City, N. J. Ultimate destination is not known but the world-wide desire for an automobile assures they will be joyously received. NEA photo

to obtain steel through the regular channels. The premium was necessary by the fact a considerable tonnage purchased was electric furnace steel, and beyond that the company shipped some of its own ingots at additional cost to other mills for rolling into sheet.

Coke from the Rouge ovens is being shipped long distances to aid distressed suppliers, principally foundries. Recently the company contracted for a tonnage of pig iron to be shipped here from Texas at a considerable freight premium. Parts have been redesigned from steel to more costly aluminum in order to realize the greatest possible number of cars and trucks from the available steel. Materials shortages have made it imperative to work many Ford manufacturing departments overtime to obtain a balanced production, and this procedure will remain in force for the balance of the year.

Typical of increases in the passenger car line is that of the two-door V-8 which has been raised from $1120 to $1205, list. Truck price boosts are somewhat smaller, except in the heavier models.

May Continue Current Models

Suspension of operations by General Motors last week and this week appears to be concentrated principally in the Chevrolet, Pontiac and Fisher Body divisions, with Buick, Olds, Cadillac and the truck and coach divisions unaffected. Advantage was being taken of the shutdown period, said to have been enforced by critical shortages of steel, to complete annual inventories usually scheduled for late December. This suggests there may be no year-end interruption to production in Chevrolet and Pontiac plants which are planning to bring out modified designs early in 1948, requiring lengthy changeover time. Buick, Olds and Cadillac, on the other hand, are slated to appear in 1948 with completely new bodies and thus more time would be required for a changeover in these divisions, when inventory-taking can be effected. No logical reason appears to explain why a steel shortage should be worse in Chevrolet and Pontiac plants than in other GM units.

Probes Seen as Political Move

Observers are reading into the launching of government probes and suits against the steel industry and its manufacturers, concurrent with loud noises from the UAW-CIO against price increases, the start of a campaign of villification and abuse against industry engineered by the CIO and the executive branch of the government as a political weapon in next year's election battle. The Reuther brothers of the UAW-CIO, Walter and Victor, lately have thrown a little more fuel on the fire. Walter has written an "open letter" to the President, asking him to order the Department of Justice and Federal Trade Commission to expand their price fixing investigations to include a probe of the steel industry's "restriction of production and production capacity." He glibly charges the "steel monopolists are putting a straitjacket on the whole American economy . . . trying to cut our economy down to the size at which they figure they can make the greatest profits with the least risk to their own investments."

Then, about ten days ago, his brother Victor took a few more swings in a speech at a Cornell University labor-management conference. Speaking on the subject of productivity, he said an increase "will help neither worker nor consumer so long as steel trusts and other monopolies continue to hold down the lid on production . . . Increased productivity can bring us higher living standards only if we first overcome the greedy resistance of business to sharing the blessings of our growing efficiency . . . Attention is directed to productivity to divert attention from profits. Yet it is gouging profits far more than worker productivity that determine the level at which our economic machine operates."

The disturbing thing about all these abusive tirades is not that they are being said or listened to; it is the absence of any reply from business and industry. Their story is a logical and understandable one, far more so than the inflamed phrases of the Reuther brothers, yet there is only silence. It is unfortunate that the body corporate is so inarticulate, so apparently defenseless against the poisonous thrusts of politicians and union leaders who need not bother too much about the truth as long as they can eject some inciting adjectives.

New Cupolas Effect Savings

Cupolas recently erected at the Pontiac foundry feature the use of about double the normal thickness of ceramic lining, reducing down-time periods, and also an overhead system of baffling and water spray designed to cool exhaust gases and absorb ash, similar to the collectors installed some years ago on Buick foundry cupolas.

Willys Expansion Progressing

Two projects in the general $21 million expansion program announced last year by Willys-Overland are now nearing completion. The $5 million body stamping shop, started 13 months ago, is expected to be ready for production soon. Eventually this department will be capable of making all stampings for the commercial line of Willys vehicles.

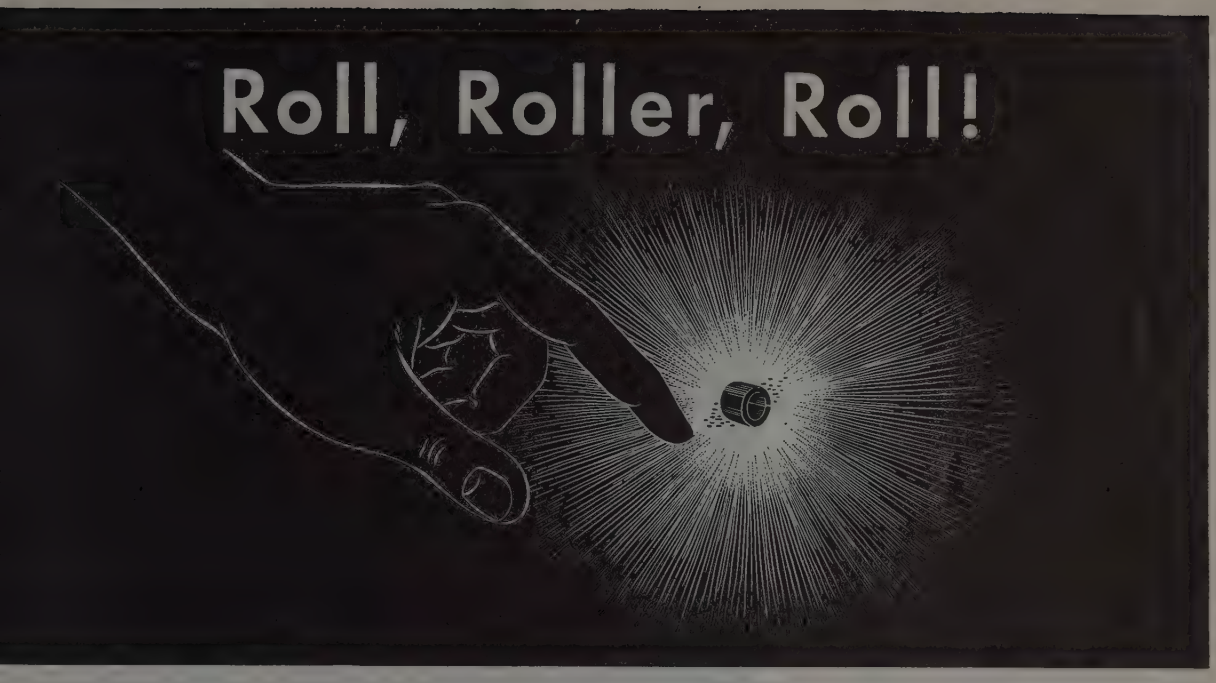
Fifty-three presses have been installed in the new shop. There are five main lines, and in the first, the largest, a 1400-ton capacity, triple-action press is 37 feet high. These presses which range in size from the 1400-ton capacity to a 160-ton capacity press, will stamp out such parts as fenders, side, floor, roof, door and cowl panels.

New forge shop at Willys-Overland in Toledo is now about 80 per cent completed, and has taken on orders for better than $2.5 million worth of forgings from outside manufacturers, in addition to handling Willys' own requirements. Capacity of the shop will be 80 million pounds of forgings a year. Quotations are now pending on $7 million worth of outside work, for companies manufacturing road-ditching equipment, trailer axles, spindles, tools, machinery and replacement auto parts.

Manufacturers To Hear Ford

Henry Ford II will be the featured speaker at the annual meeting of Automotive & Aviation Parts Manufacturers Inc. in Cleveland, Sept. 29, and will be introduced by John Airey, president of King-Seeley Corp., Ann Arbor, Mich.

Roll, Roller, Roll!



This short length of UNION roller chain is made up of the 28 separate parts shown below.

UNION CHAINS

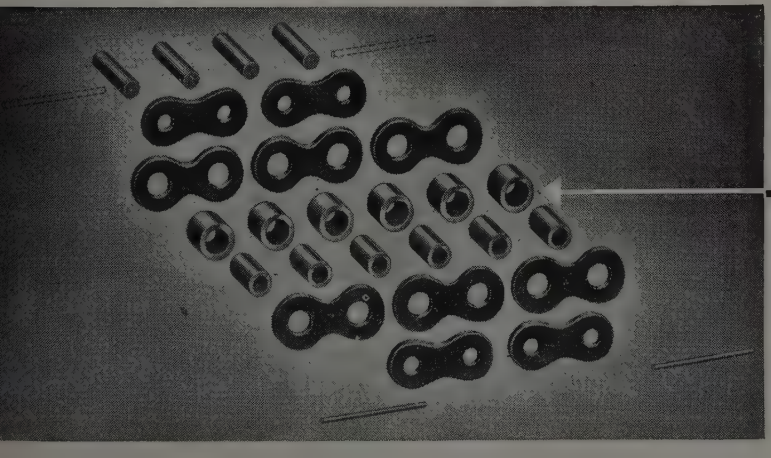
Simple—this roller for a UNION roller chain, but a large part of industry rolls on it. Looking at it . . . rolling it on your desk . . . you would scarcely suspect that it takes 10 precise operations to produce it.

Look at the "exploded" drawing below. There you see 6 such rollers in the short length of chain shown at the left. You also see there 28 separate parts in this same length of chain. To make these 28 parts, exactly 290 operations are required, **all under rigidly controlled inspection.**

Our job at UNION CHAIN is to make sprocket chains, attachments and sprockets for the transmission of power and the handling of materials—**and we make nothing else!** As chain specialists we take pride in the high standards of skill and precision maintained by our engineers and craftsmen.

We are not yet able to meet the tremendous demand for UNION chain, but we are making every effort to do so, consistent always with the character of our product and the complicated processes of its manufacture.

The Union Chain and Manufacturing Company • Sandusky, Ohio



THESE 10 OPERATIONS TO MAKE THIS STEEL ROLLER

1. straighten coil stock material
2. cut off to length
3. curl
4. roll
5. grind
6. de-grease
7. heat treat and quench
8. temper
9. clean and polish
10. color

Continental Can Emphasizes Its Diversification

Company since 1941 has become major producer of crown caps, steel containers, house ware and other items

UNTIL recently Continental Can Co. Inc. was known generally as a manufacturer of metal cans, but beginning in 1941 the company undertook a major program of expansion and today it manufactures not only cans, but crown caps, steel containers, household ware, plastic products and fibre and paper containers.

Continental's crown cap and cork division had its origins long before 1944, but the company didn't become a major producer until about that year with acquisition of facilities in Wilmington, Del., and Los Angeles, which now comprise Bond Crown & Cork Co. The subsidiary's purchase of the facilities of Bamberger-Kraus & Co., Pittsburgh, in 1945 and the establishment of a fourth plant in New Orleans have made Continental the second largest factor in this field.

The company makes 28 gage and heavier steel containers, ranging in capacity from 3½ to 6½ gallons. Continental is the largest U. S. manufacturer of kerosene cans and flaring pails. Rounding out its metal can business, the firm produces a complete line of decorated metal household ware, such as bread boxes, canister sets, step-on cans, wastebaskets, trays and lunch boxes.

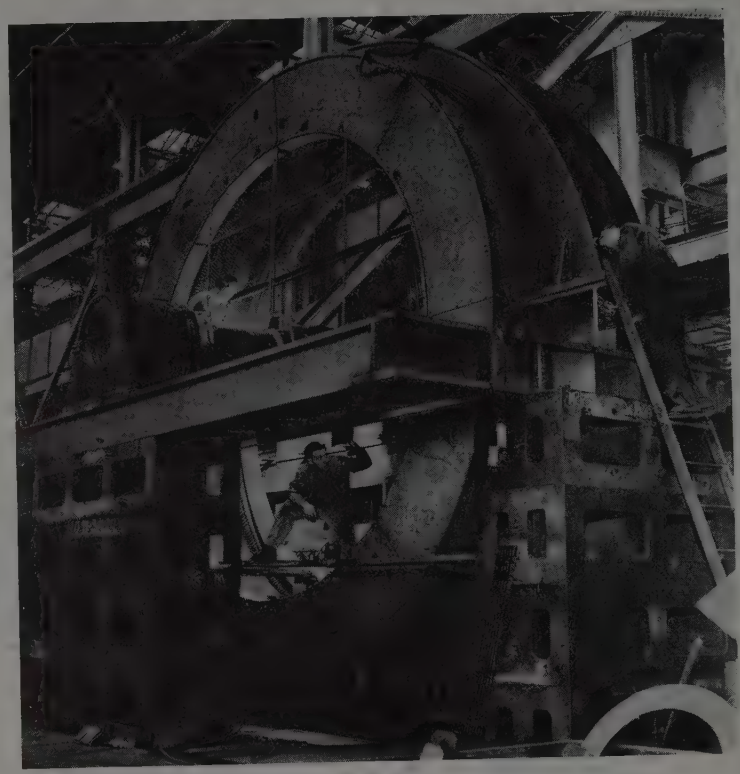
Diversification Extends to Plastics

Continental's most recent diversification has been in plastics. In 1943 its plastics plant in Chicago, subsequently moved to Cambridge, O., pioneered in the development of a high strength, low pressure laminate, extensively used in military aircraft. The following year the company acquired Reynolds Molded Plastics Division of Reynolds Spring Co. in Cambridge, O., and later organized the present Plastics Division with headquarters in the same city. The plant turns out laminated sheets, which are used for covering horizontal surfaces, wall covering, automotive interior trim and insulation. The facility supplies finished products to the automotive, radio, refrigerator, electrical, household appliance and allied industries.

In the sphere of fibre and paper containers, Continental emerged as a major producer of such items after the purchase in 1942 of Boothby Fibre Can Co., Roxbury, Mass., and other plants in Utica, N. Y., Van Wert, O., St. Louis and Reading, Pa. This last facility was purchased in 1944, as was Mono Service Co., Newark, N. J., maker of paper hot drink cups and food containers.

Founded in 1905, Continental today operates 62 plants, mills and other units throughout the United States, Canada and Cuba. Of these facilities, 35 are devoted to making cans, an operation which still remains as the major portion of Continental's total business. In addition to Canadian and Cuban subsidiaries, the company has licensing arrangements with can makers in France, Great Britain, and other foreign countries.

Consolidated net earnings of Continental for the 12 months ended June 30, 1947, after income taxes and other charges, were $9,240,040, compared with $3,014,263 for the corresponding period ended June 30, 1946, according to Hans A. Eggerss, president.



GIANT MOTOR: When completed, this 100-ton synchronous motor, the largest alternating current mill motor ever built by General Electric Co., Schenectady, N. Y., will drive a roughing stand of a hot strip mill in the Fairfield, Ala., plant of the Tennessee Coal, Iron & Railroad Co., a United States Steel Corp. subsidiary. The 4000 hp motor, which has a rotor weighing 52 tons, will be rated at 6600 volts. NEA photo

Four Forgings Plants Go To Wyman-Gordon for $950,00

Four aircraft forging plants, operated during the war by Wyman-Gordon Co. in Worchester, Mass., have been sold to that company for $950,000, together with machinery and equipment in the buildings, War Assets Administration has announced.

The facilities are intermingled with privately-owned Wyman-Gordon properties and cannot be operated independently. The plants have an appraised fair value of $1,061,583 and consist of a machine shop building, cooling tower, heat-treat building, power plant system, transformer substation and additions to three privately-owned Wyman-Gordon buildings.

Weirton Steel Co. Gets New Koppers-Becker Coke Ovens

A new battery of 53 Koppers-Becker ovens has been placed in operation at Weirton Steel Co., Weirton, W. Va. increasing coke output 850 tons daily.

A second battery with similar capacity is scheduled to go into operation at Weirton within two months. Then Weirton will have 262 vertical slot-type ovens with daily capacity of 3400 tons.

BRIEFS . . .

Paragraph mentions of developments of interest and significance within the metalworking industry

Harr-Vinn Foundry Co., Baltimore, producer of metal art work, has moved to 625 Portland St.

—o—

Douglas M. McBean Inc., Rochester, N. Y., firm of consulting engineers, has opened an office at 61 W. 56th St., New York.

—o—

Carborundum Co., Niagara Falls, N. Y., has purchased for $1 million the northern portion of Bell Aircraft Corp. plant in Niagara Falls from WAA. Included in the purchase are four major buildings and a land tract of 65 acres.

—o—

Bendix Home Appliances Inc., South Bend, Ind., last month produced and sold its millionth automatic washer in the seven years since the company began production of the appliance.

—o—

Hydro-Line Mfg. Co., Rockford, Ill., manufacturer of air and hydraulic cylinders, special machinery and equipment, has appointed Hirzel Sales Co., Detroit, as its sales representative in Michigan and bordering cities in Ohio and Canada.

—o—

General Chemical Co., New York, has purchased for $155,000 from WAA nitric acid producing and handling apparatus and related production machinery and equipment at the Point Pleasant, W. Va., and Sandusky, O., ordnance plants. The purchaser will remove the items to its plant at Newell, Pa. Cost of dismantling, moving and re-erecting is estimated at $100,000.

—o—

Greer Steel Co., Dover, O., producer of cold-rolled strip steel, has moved its Chicago district sales office to 2345 W. Devon Ave.

—o—

Vacuum Cleaner Manufacturers' Association, Cleveland, announces that factory sales of standard-size cleaners in July totaled 280,585, down 14 per cent from 329,986 in June, but an increase of 51 per cent over sales of July, 1946.

—o—

War Assets Administration announces that government iron ore sintering facilities intermingled with American Rolling Mill Co. facilities in Hamilton, O., have been leased to that company for six years. The lease, which contains an option to purchase at $620,000, calls for a rental of 17 cents per net ton of sintered ore. Rent may be not less than $36,000 per year.

—o—

Philco Corp., Philadelphia, has acquired the production facilities and all other assets of Rex Mfg. Co. Inc., Connersville, Ind., manufacturer of refrigerators. Operations at Rex will continue without any change in personnel or policies.

—o—

National Cylinder Gas Co., Chicago, maker of welding and cutting equipment, has produced a slide color film depicting the company's line of products.

—o—

Ajax Steel & Forge Co., Detroit, manufacturer of steel forgings, has named Gamble & Gamble, Buffalo, as its representative in that area.

—o—

Office of Technical Services, U. S. Department of Commerce, has issued a new list of scientific and technical subject headings covering the latest advances in the fields of electronics, explosives, ordnance, tropicalization, aeronautics, photography, metallurgy, nuclear physics and others.

—o—

Universal Atlas Cement Co., Hannibal, Mo., subsidiary of U. S. Steel Corp., was recently awarded a safety trophy for having operated without a lost-time accident during the entire year of 1946.

—o—

Sunray Oil Corp., Tulsa, Okla., has purchased for $5,100,000 an oil refinery in Duncan, Okla. Built at a cost of $15,150,000, the plant will require an additional $3 million in changes and additions.

—o—

Jack & Heintz Precision Industries Inc., Cleveland, has appointed Ahlberg Bearing Co., Chicago, as the representative of its ball bearing division in the United States and abroad.

—o—

Formica Insulation Co., Cincinnati, maker of laminated materials, announces that its British licensee, DeLaRue Insulation Ltd., has almost completed a plant at Tynemouth, England. DeLaRue is authorized to manufacture, sell and distribute Formica products in all parts of the British Empire except those located in the Western Hemisphere.

—o—

Horizons Inc., Princeton, N. J., research and development organization, announces that its laboratory at Niagara Falls, N. Y., will be moved to 2891 E. 79th St., Cleveland. Facilities will be occupied by Sept. 1.

—o—

Jumbo Steel Products Co., manufacturer of farm and road machinery and fabricated steel, is now located in Azusa, Calif. Formerly named Simpson Steel Co., the firm is proceeding with an expansion program which includes a plant addition and the purchase of new equipment.

—o—

Lamex Chemical Co., manufacturer of pharmaceutical chemicals, has moved its entire manufacturing and laboratory equipment from New York to Birmingham. The company recently acquired the $1 million Swann Chemical Co. plant in Birmingham on lease.

—o—

Wire & Metal Products Co., Denver, newly formed, is producing reinforcing ties, brick spacers and other wire products and metal stampings. Lionel F. Walton is president of the firm.

—o—

War Assets Administration is offering for sale or lease a five-story plant in Milwaukee operated during the war by A. O. Smith Corp. for manufacturing airplane landing gear. Containing 405,000 sq ft of floor area, the plant's value has been set at $873,000.

—o—

SKF Industries Inc., Philadelphia, manufacturer of ball and roller bearings, announces that its new plant facilities in Hornell, N. Y., will enable it to achieve an 80 per cent increase in production of pillow blocks.

—o—

Alabama State Department of Industrial Relations announces that bituminous coal production for the first seven months of this year was 9,617,000 tons, as compared with 8,733,000 tons during a similar period in 1946.

—o—

Whitney Chain & Mfg. Co., Hartford, Conn., moved its Dallas Branch office and warehouse to 2914 Taylor St. Firm makes power transmission and conveying chains and sprockets, but not foundry equipment and cranes as was reported in STEEL, Aug. 4, page 79.

—o—

War Assets Administration has ordered a "freeze" on its stocks of pipes used for watering livestock and repairing and drilling water wells. Action came as a result of a shortage of this equipment in the Midwest. Stocks will be offered to distributors and dealers serving the farmers in this area.

—o—

Chamber of Commerce of Philadelphia announces the formation of an organization in the city for voluntary settlement of labor-management disputes without recourse to government intervention. Named the Mediation Council, it consists of an advisory and policy-making board of six management and six labor representatives and a panel of mediators chosen by the two groups.

The Business Trend

Slight Gain Registered By Industrial Activity

INDUSTRIAL production as a whole moved up slightly in the week ended Aug. 23, although there were mixed trends in various segments of industry. While total output was at a high rate, in most instances the current production of various industries was still insufficient to satisfy the heavy demand.

The upward movement raised STEEL's industrial production index one point over the preceding week to 159 per cent of the 1936-1939 average. Largely responsible for the strengthening was attainment of a new all-time high by electricity distribution, which in the week ended Aug. 23 reached 4,952,876,000 kilowatthours, compared with 4,923,000,000 kwh in the preceding week and 4,940,453,000 kwh, previous all-time high set last December.

STEEL—Necessity for repair of furnaces and extremely warm weather that lowered manpower efficiency contributed to a decline in steel ingot operations in the week ended Aug. 23 to 93 per cent of capacity, marking the second consecutive week of a one-point reduction. Meanwhile, some manufacturers have had to slow or stop operations because of lack of steel or an unbalance in supplies.

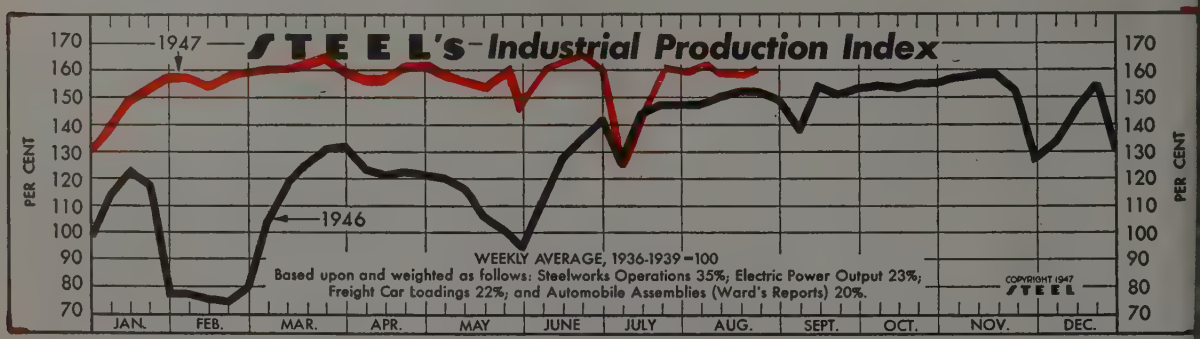
AUTOS—Only slight improvement in automobile output was achieved in the week ended Aug. 23, when production of passenger cars, trucks and busses totaled 84,739 units, compared with 83,501 in the preceding week. Final figures are expected to show that August was one of the poorest auto production months this year.

COAL—Bituminous coal production in the week ended Aug. 16 declined from that of the preceding week, and also narrowed the lead of this year's output over that of the corresponding period of 1946. Each week since the miners returned to work in July under their new contract the output has been lower than in the like week of last year. Before the mid-summer work stoppage, weekly production was around 12½ to 13 million tons but since the new contract was effected the output has been only slightly more than 11½ millions tons.

CAR LOADINGS—Freight car loadings for the last several weeks have been well above those of the comparable weeks of last year and are due to continue high for some weeks. The Association of American Railroads says freight cars for loading will be in heavy demand until the peak of fall loading has passed.

PRICES—Increases in both agricultural and nonagricultural prices pushed the Bureau of Labor Statistics wholesale price index in the week ended Aug. 16 to a new postwar high for the fifth consecutive week. At 152.7 per cent of the 1926 average, the index was 0.3 per cent higher than in the preceding week.

CONSTRUCTION—A contraseasonal increase in investment commitments for construction is revealed in tabulations by the F. W. Dodge Corp. of project contracts awarded in July in the 37 states east of the Rocky mountains. The July commitments were 9 per cent above those of June.



The Index (see chart above): Latest Week (preliminary) 159 Previous Week 158 Month Ago 157 Year Ago 152

FIGURES THIS WEEK

INDUSTRY	Latest Period*	Prior Week	Month Ago	Year Ago
Steel Ingot Output (per cent of capacity)†	93.0	94.0	95.0	89.0
Electric Power Distributed (million kilowatt hours)	4,953	4,923	4,730	4,444
Bituminous Coal Production (daily av.—1000 tons)	1,957	1,968	2,000	2,002
Petroleum Production (daily av.—1000 bbl.)	5,153	5,159	5,084	4,836
Construction Volume (ENR—Unit $1,000,000)	$109.4	$57.4	$134.8	$97.0
Automobile and Truck Output (Ward's—number units)	84,739	83,501	83,867	91,360

* Dates on request. † 1947 weekly capacity is 1,749,928 net tons. 1946 weekly capacity was 1,762,381 net tons.

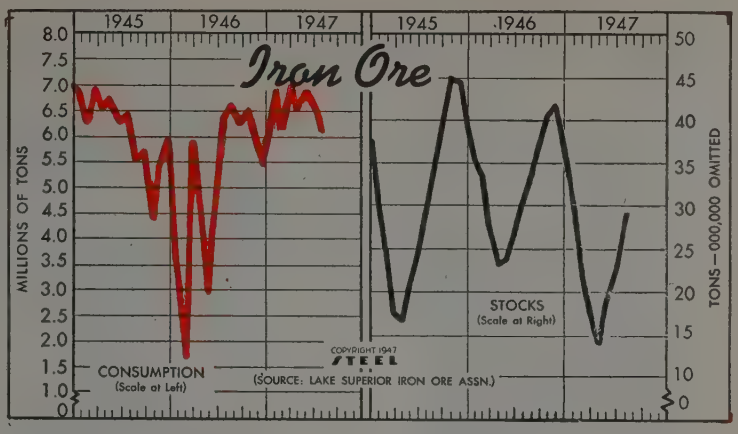
TRADE				
Freight Carloadings (unit—1000 cars)	904†	906	920	885
Business Failures (Dun & Bradstreet, number)	70†	78	76	17
Money in Circulation (in millions of dollars)‡	$28,239	$28,223	$28,145	$28,365
Department Store Sales (change from like wk. a yr. ago)‡	—6%	—2%	+8%	+92

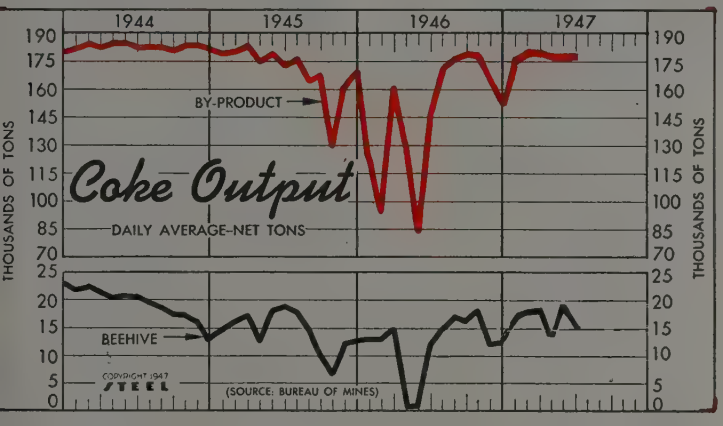
† Preliminary. ‡ Federal Reserve Board.

Iron Ore

(Lake Superior Iron Ore Assn.)
Gross tons—000 omitted

	Consumption		Stocks at Lake Erie docks and furnaces	
	1947	1946	1947	1946
Jan.	7,024	3,719	30,514	35,342
Feb.	6,264	1,748	24,317	33,647
Mar.	6,979	6,021	17,411	27,601
Apr.	6,579	4,769	13,555	23,079
May	6,885	2,990	17,618	23,905
June	6,500	4,995	21,746	26,265
July	6,156	6,460	28,440	30,439
Aug.	....	6,738	.....	34,067
Sept.	....	6,380	.....	37,573
Oct.	....	6,625	.....	40,435
Nov.	....	6,131	.....	41,919
Dec.	....	5,516	.....	37,465
Total	....	62,093	.....	.....





Coke Output

Bureau of Mines
(Daily Average—Net Tons)

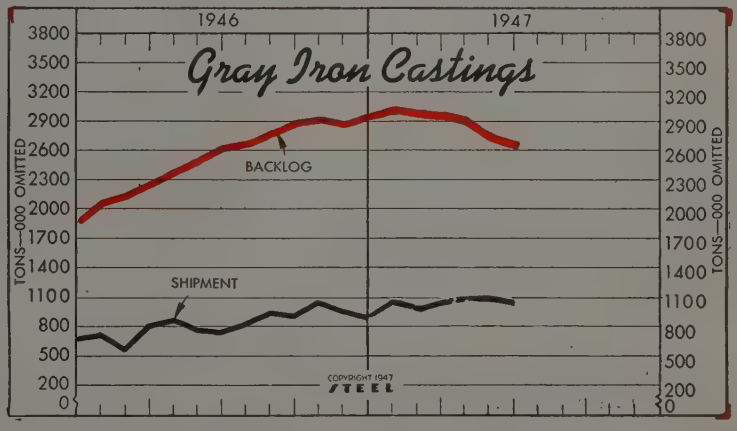
	By-Product		Beehive	
	1947	1946	1947	1946
Jan.	181,245	122,570	18,124	13,093
Feb.	183,189	93,985	18,372	13,140
Mar.	182,529	161,290	18,725	14,962
Apr.	179,428	128,394	14,315	713
May	178,398	83,019	18,922	869
June	177,502	148,100	14,970	12,600
July	.....	171,703	.....	15,105
Aug.	.....	176,195	.....	16,892
Sept.	.....	178,156	.....	16,167
Oct.	.....	177,817	.....	17,954
Nov.	.....	164,165	.....	12,028
Dec.	.....	153,826	.....	12,302
Ave.	.....	146,602	.....	12,152

Gray Iron Castings

(U. S. Bureau of Census)
Tons—000 omitted

	Shipments		Backlogs*	
	1947	1946	1947	1946
Jan.	1,078	727	3,021	2,096
Feb.	1,010	572	2,987	2,182
Mar.	1,090	820	2,979	2,285
Apr.	1,097	886	2,908	2,430
May	1,097	783	2,783	2,531
June	1,038	757	2,711	2,640
July	....	840	....	2,708
Aug.	....	973	....	2,814
Sept.	....	937	....	2,897
Oct.	.....	1,078	....	2,953
Nov.	....	987	....	2,940
Dec.	....	909	....	2,980
No. Ave.	....	856	....	2,621

* Unfilled orders for sale to the trade.



FINANCE

	Latest Period*	Prior Week	Month Ago	Year Ago
Bank Clearings (Dun & Bradstreet—millions)	$12,026	$11,367	$12,536	$12,163
Federal Gross Debt (billions)	$260.0	$259.8	$258.8	$267.7
Bond Volume, NYSE (millions)	$14.9	$14.2	$22.2	$17.0
Stocks Sales, NYSE (thousands)	3,073	3,662	5,423	4,506
Loans and Investments (billions)†	$63.5	$63.6	$63.4	$59.9
United States Gov't. Obligations Held (millions)†	$38,588	$38,735	$39,145	$41,460

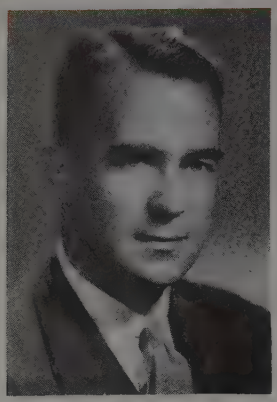
† Member banks, Federal Reserve System.

PRICES

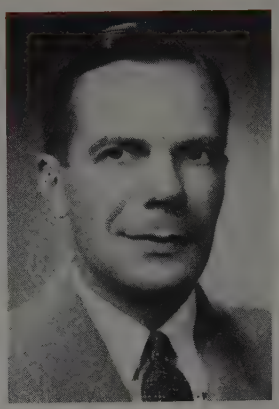
STEEL's composite finished steel price average	$75.41	$75.41	$69.14	$64.45
All Commodities†	152.7	152.2	150.3	128.3
Industrial Raw Materials†	166.8	166.4	165.2	146.3
Manufactured Products†	147.8	147.2	145.1	122.9

† Bureau of Labor Statistics Index, 1926=100.

Men of Industry



RICHARD Y. MOSS



H. L. BOETSCH

LEE B. THOMAS

Richard Y. Moss has been appointed sales manager of the Machine Tool Division, Sheffield Corp., Dayton, O., and for the Measuray, or X-ray gage, for non-contact measurement of continuous production of such materials as steel, copper, brass, aluminum, foil, plastics, etc. He will be assisted by **J. T. Welch.** Mr. Moss, who joined Sheffield several years ago as production engineering manager, recently returned from Australia, where he had charge of preliminary work in organizing the activities of a Sheffield subsidiary in that country.

—o—

Allen H. Gardner has resigned as president and treasurer of the Colonial Radio Corp., Buffalo. **Don G. Mitchell,** president of Sylvania Electric Products Inc., parent company, will assume, temporarily, the duties of president of Colonial Radio, and **Max F. Balcom,** treasurer of Sylvania Electric Products, will take over as treasurer of the subsidiary company. Mr. Gardner will continue as a member of the Colonial directorate.

—o—

Walter G. Dickey has been appointed sales representative for the Ziegler Steel Service Co., Los Angeles. He formerly had been with A. M. Castle & Co., Chicago.

—o—

J. K. Rector, formerly assistant advertising manager, E. W. Bliss Co., Detroit, has been appointed advertising & sales promotion manager of the Watson-Stillman Co., Roselle, N. J., manufacturer of hydraulic machinery and mill distributors' products.

—o—

L. A. Weom has been appointed manager of the Pump Division, Fairbanks, Morse & Co., Chicago, to succeed **Arnold Brown,** resigned. Mr. Weom joined the company in 1929 as an assistant in the pump and electric department of the company's St. Paul branch, and later was promoted to manager of that department, which position he held at the time of his recent appointment.

—o—

H. L. Boetsch, formerly sales manager, Pennsylvania Flexible Metallic Tubing Co., Philadelphia, has been appointed vice president in charge of sales. **T. R. Boyle,** formerly manager of the company's Syracuse, N. Y., branch, has been promoted to manager of the Chicago branch. He is succeeded in Syracuse by **J. J. Lynch.**

—o—

J. Harold Merrick, formerly vice president and general attorney of Rheem Mfg. Co., San Francisco, has been elected president of Storagewall Inc., Indian Orchard, Mass.

—o—

Dr. Ford R. Lowdermilk has been appointed supervisor of the Development Division in the research and development department of the Pennsylvania Salt Mfg. Co., Philadelphia. He succeeds **Frank R. Murphy,** who recently was appointed assistant production manager in the company's manufacturing department. Before joining Pennsalt, Dr. Lowdermilk had been associated with the Barrett Division of the Allied Chemical & Dye Corp., New York, in the research & development department, and as technical assistant to the chief chemical engineer.

—o—

E. Blakeney Gleason, vice president, treasurer and general manager, Gleason Works, Rochester, N. Y., has been named a member of the 1947 machine tool show committee of the National Machine Tool Builders' Association, and also appointed chairman of the registration committee for the show. Serving with Mr. Gleason on the show committee will be: **Swan E. Bergstrom,** Cincinnati; **William L. Dolle,** Cincinnati; **Rudolph W. Glasner,** Chicago; **Ralph J. Kraut,** Springfield, Mass.; **Donald M. Pattison,** Cleveland; and **Louis Polk,** Dayton, O. The machine tool show will be held Sept. 17 through 26, in the Dodge-Chicago plant near the Chicago airport.

—o—

Lee B. Thomas has been elected president and chief executive officer of the American Elevator & Machine Co. Inc., Louisville. Formerly president of Ekco Products Corp., Chicago, he had previously been connected for many years with Butler Bros., Chicago. In his new position as president of American Elevator & Machine Co., Mr. Thomas succeeds **R. I. Phillips,** who has been named chairman of the board. **C. C. Phillips** will continue as treasurer of the company, and president of the subsidiary company, the American Fabricators Inc.

—o—

James E. Smith has been appointed open hearth superintendent, and **Arthur A. Kappenhagen,** assistant open hearth superintendent, at the Cleveland district steel plant of Republic Steel Corp., Cleveland. Mr. Smith succeeds **Harry L. Allen Jr.,** recently transferred to the Buffalo district as assistant district manager.

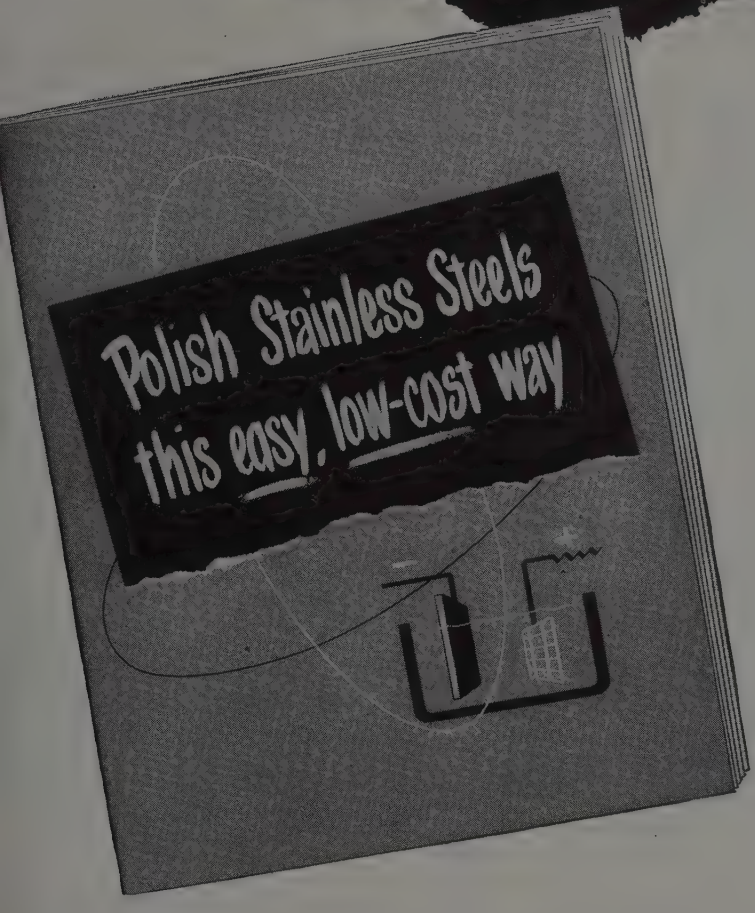
—o—

Fred D. Snyder has been appointed director of public relations, Kimble Glass Division, Owens-Illinois Glass Co., Toledo, O. The company has also announced appointment of four plant managers: **Stuart A. Kenworthy,** Vineland plant; **March Nagle,** Chicago Heights, Ill.; **Frank T. Ritter Jr.,** Warsaw, Ind.; and **William Schnorr,** Indianapolis.

—o—

Robert L. Hutchison has been appointed general superintendent for the Columbia Chemical Division, Pittsburgh Plate Glass Co., Pittsburgh, and for the

EVERY PRODUCT-FINISHER SHOULD HAVE THESE MONEY-MAKING FACTS



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You can polish many kinds of stainless steel products to a high luster *in one operation* —without turning a buffing wheel!

WHAT IT IS . . .
This improved process is called "Armco Electropolishing." It is an easy, low-cost method of polishing many stainless steel products by anodic treatment in an electrolytic bath. The process has shown substantial savings for fabricators of practically all forms of ARMCO Stainless Steel . . . wire, bars, forgings, sheets and strip.

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If your products are made of plated metals it may pay you to investigate the possibilities of ARMCO Stainless Steels — and the Electropolishing process. Many manufacturers have cut costs and made good products better by changing over to Electropolished stainless steel parts.

MAIL THE COUPON TODAY . . .
For more information about this cost-saving method of polishing stainless steels, just fill in the handy coupon on this page. We'll send you a fact-filled folder on Armco Electropolishing titled "Polish Stainless Steels This Easy, Low-Cost Way." Mail it today! The American Rolling Mill Company, 333 Curtis St., Middletown, O.

ARMCO ELECTROPOLISHING PROCESS

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Send me a copy of the folder "Polish Stainless Steels This Easy, Low-Cost Way."

Name_____ Title_____

Company_____

Street Address_____

City_____ Zone No._____ State_____

Southern Alkali Corp., a subsidiary. Mr. Hutchison has served as superintendent of the Columbia Chemical Division's alkali producing plant at Barberton, O., during the past seven years. He will now maintain headquarters in Pittsburgh.

—o—

Selby F. Greer has been appointed general sales manager for the Kellogg Division, American Brake Shoe Co., New York. Formerly assistant general sales manager, Mr. Greer has served in various sales capacities since joining the company. He will continue to be located at the company's main plant in Rochester, N. Y.

—o—

Albert Musschoot, member of the general engineering staff at Philadelphia of Link-Belt Co., has been appointed assistant to the chief engineer, with headquarters at the company's general office in Chicago. He will be directly responsible to **Richard F. Bergmann,** vice president and chief engineer of the company.

—o—

Oscar Brewer, sales engineer, Leeds & Northrup Co., Philadelphia, has retired after nearly 39 years with that organization. For several years Philadelphia Industrial Division sales manager, he is succeeded in that position by **H. R. Abey.**

—o—

Harry E. Weiler has been appointed manager of the Louisville district sales office for Reynolds Metals Co., Louisville, and will serve all of Kentucy (except Kenton and Campbell counties) and the southern part of Indiana. He has been product manager of the Extrusion & Tubing Division of the company. His previous connections were with Tennessee Eastman Corp., Kingsport, Tenn., Enterprise Wheel & Car Corp., Bristol, Va., and Revere Copper & Brass Co. Inc., New York.

—o—

Jay C. Warner, Pacific area regional sales supervisor for the export department, General Machinery Division, Allis-Chalmers Co., Milwaukee, is spending six months in the Far and Middle East, visiting Hawaii, China, French Indo-China, Siam, Malay states, Burma and India, to survey business conditions and determine sales potentials.

—o—

Wheeling Steel Corp., Wheeling, W. Va., announces appointment of **S. A. Meder** as manager of the Cut Nail Sales Division, succeeding the late L. R. Crago.

—o—

Claire G. Ely has been named manager of the Kansas City branch, Maytag Co., Newton, Iowa, to succeed **G. H. Ireland,** retiring from the company after 50 years' service.

—o—

Dr. George W. Lewis, director of aeronautical research for the National Advisory Committee for Aeronautics, has been appointed research consultant for the NACA. He is succeeded as director of aeronautical research by **Dr. Hugh L. Dryden,** associate director of the National Bureau of Standards.

—o—

Walter L. Stutz, chief of the engineering instruments and mechanical appliances section of the National Bureau of Standards, Washington, has retired after 35 years' service with the bureau.

—o—

Dr. William E. Wickenden, retiring president, Case Institute of Technology, Cleveland, has been named by the Engineers Joint Council as its representative on the United States Commission for UNESCO—United Nations Educational, Scientific and Cultural Organization. Last week, Dr. Wickenden was stricken with a severe heart attack, and was hospitalized in Monadnock Community Hospital, Peterboro, N. H.

—o—

Thomas M. Camerden has been named manager of sales in Cincinnati for the American Steel & Wire Co., Cleveland, U. S. Steel Corp. subsidiary. He succeeds the late **C. J. Boon.** Connected with the company since 1909, he became assistant manager in the New York office in 1933, and later transferred to Detroit as assistant manager.

—o—

James F. Rinke has been appointed chief engineer by Potter & Brumfield Mfg. Co., Princeton, Ind. He recently was connected with Electronic Laboratories Inc., Indianapolis. **James T. Watson,** former president of Meissner Mfg. Co., Mt. Carmel, Ill., and until recently manager of the Meissner Division of Maguire Industries, has been appointed a member of the board of directors of Potter & Brumfield.

—o—

Lee Bartholomew has been named vice president in charge of sales for the Southern States Iron Roofing Co., Savannah, Ga. He has been associated with the Celotex Corp., Chicago, where, after serving as assistant general sales manager, he had been engaged in a special program of sales development for Cemesto, a company product.

—o—

George J. Buckner has been appointed assistant general manager of the Bethlehem plant of Bethlehem Steel Co., Bethlehem, Pa. He succeeds the late **J. A. Taylor.** Mr. Buckner has been with the company since 1917, serving in various capacities, and since 1940, superintendent of the Manufacturing Division. He is succeeded in that position by **Irvin S. Reiter,** superintendent of heavy forging manufacturing shops.

—o—

Charles E. Nelson, technical director of the Magnesium Division, Dow Chemcal Co., Midland, Mich., will present the Charles Edgar Hoyt annual lecture at the 1948 convention and show of American Foundrymen's Association in Philadelphia next May. He will speak on "The Control of Grain Size in Magnesium Castings."

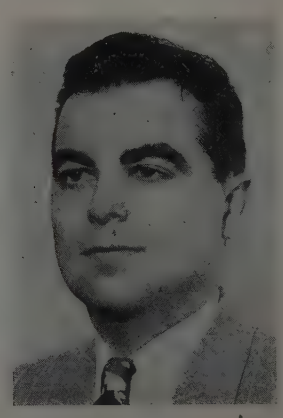
—o—

C. F. Breer has been appointed sales manager of McCulloch Motors Corp., Los Angeles. He had been assistant sales manager of the company for the past year. In his new position, Mr. Breer will direct sales and advertising of the McCulloch lightweight industrial engines, as well as the target-aircraft engines built for the armed service. He also will head the sales of Haylo gas space heaters, and other McCulloch consumer products. Before service in the war as a naval officer attached to the Bureau of Aeronautics, Mr. Breer had been associated with the Engineering Division of Chrysler Corp., Detroit.

—o—

Fred F. Loock, formerly vice president and general manager of Allen-Bradley Co., Milwaukee, has been elected president to succeed **Harry L. Bradley.** Mr. Bradley had been president since the death of his brother, **Lynde Bradley,**

LEE BARTHOLOMEW

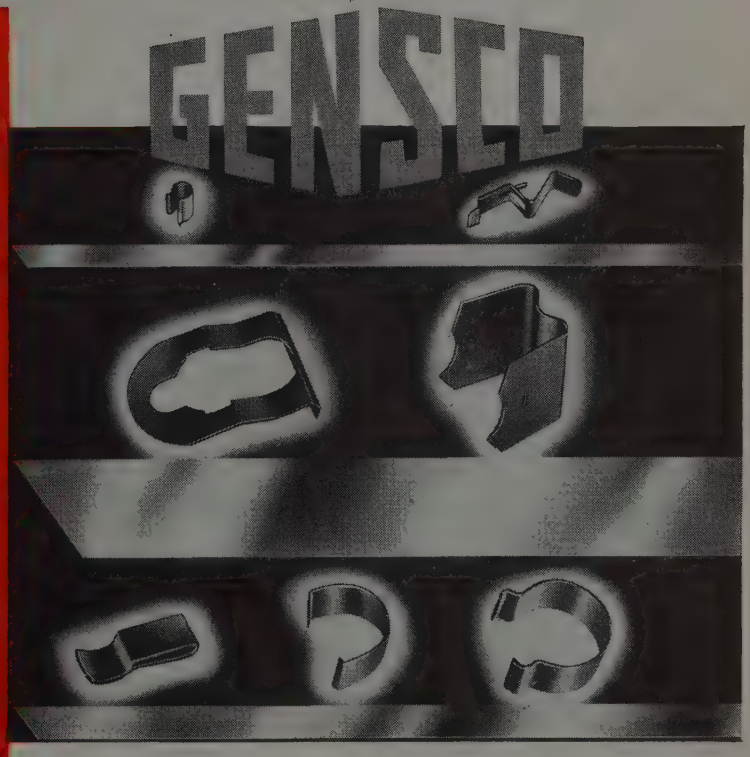


C. F. BREER

Again in Stock

ANNEALED SPRING STEEL

.70-.80 CARBON • .90-1.05 CARBON



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Gensco feeler gauge steel is highly polished, bright tempered and rolled to extreme accuracy. Complete thickness range .0015 to .045 x ½ inch wide in stock.

It's back again! . . . Ready for immediate delivery . . . versatile Gensco cold rolled annealed spring steel. It can easily be formed into the most intricate of shapes, and hardened and tempered to your exact requirements.

Thicknesses from .005 to .187, sheared or slit to your width.

Your order to Gensco means prompt delivery, proper packing for your needs and complete engineering service.

COLD FINISHED BARS • SHAFTING • TEMPERED AND ANNEALED SPRING STEEL • DRILL ROD • SHIM STEEL • COLD ROLLED STRIP STEEL • COILS AND STRAIGHT LENGTHS • ROUND EDGED STRIP STEEL • FEELER GAUGE • ROUND WIRES • STEEL BALLS.

GENERAL STEEL WAREHOUSE CO., INC.

1830 N. Kostner Avenue, Chicago 39, Illinois • Belmont 4266

CINCINNATI • MILWAUKEE • ST. LOUIS • NEW YORK

in 1942. He has now been elected chairman of the board.

—o—

Edward F. Dobson has been elected president and a director of Florence Stove Co., Gardner, Mass., succeeding **Robert L. Fowler,** who will continue as chairman of the board. Mr. Dobson has been president of Rundle Mfg. Co., Milwaukee.

—o—

LeRoy C. Macneal has been appointed project manager for the Roane-Anderson Co., Oak Ridge, Tenn. The company is a subsidiary of Turner Construction Co., New York.

—o—

Frederick E. Hanson has been appointed manager of the electronics shops in New York and Allentown, Pa., for Western Electric Co. Inc., New York. **G. E. Long** will succeed Mr. Hanson as engineering head of the shops.

—o—

Robert F. Nelson and **Oscar W. Nelson** have resigned as vice presidents of R. G. LeTourneau Inc., Peoria, Ill., and **Ray E. McCluskey** has been named vice president and general sales manager of the company.

—o—

The Kaiser Co. Inc., Fontana, Calif., has appointed **Clarence R. Lohrey** superintendent of the coke and by-products plant at the Fontana steel mill. He succeeds **J. H. Thompson,** who has resigned to accept a position with an eastern steel company.

—o—

F. M. Falge has been appointed manager of the lamp department for the Pacific sales district of General Electric Co., Schenectady, N. Y. He succeeds **Morris C. Hixson,** who has retired.

—o—

H. W. Lingenfelter has been appointed manager of commercial, industrial & floodlighting sales for the Lighting Division, Cleveland, of Westinghouse Electric Corp. He previously had been in the company's Minneapolis office. Mr. Lingenfelter has been connected with Westinghouse for 23 years as a lighting engineer.

—o—

Ray Stearns, engineer in charge of Marine & Aeronautics Engineering Division, General Electric Co., Schenectady, N. Y., has retired after 45 years' service. He is succeeded by **H. C. Carroll,** assistant engineer of the division. Mr. Stearns had been engineer in charge of the division since it was organized in 1927.

—o—

The Lead Industries Association, New York, announces appointment of **Christy J. Vander Valk** as technical director of the Red Lead Division. He formerly had been connected with the research department of Heyden Chemical Corp., Garfield, N. J.

—o—

J. V. McCartney has been named resident engineer for Establecimientos Metalurgicos, Santa Rosa, Buenos Aires, Argentina. He will have offices in New York. Mr. McCartney had been associated with the Carnegie-Illinois Steel Corp., Pittsburgh, in the Chicago district engineering offices, and previously had charge of the development and construction of iron and steel plants in several foreign locations.

—o—

Howard P. Sharp has resigned as secretary of the local Chamber of Commerce, Kokomo, Ind., to accept a position as manager of consumer relations with the Cummins Engine Co., Columbus, Ind.

—o—

Ross E. Thompson, formerly assistant zone manager in Kansas City for Pontiac Motor Division, General Motors Corp., Detroit, has been named zone manager in Oklahoma for the division. The Oklahoma office is re-opened after being closed during the war.

—o—

F. M. Sloan has been appointed manager of the Home Radio Division, Westinghouse Electric Corp., Pittsburgh, succeeding **Harold B. Donley,** who has resigned. Mr. Sloan has been connected with radio activities of the corporation for 15 years.

—o—

Harold V. Walker has been appointed district manager, Indian Motocycle Co., Springfield, Mass. He formerly had been with Meyer Furnace Co., Peoria, Ill.

—o—

Monte M. Wheeler has been appointed by General Electric Co., Schenectady, N. Y., as representative in San Francisco for heating devices and fans.

—o—

S. E. Russ, New York district sales manager for Trans World Airline, has been appointed manager of international cargo traffic.

—o—

Bernard Brownstein, president of Berland Trading Co. and of Browning Export Corp., New York, will sail Sept. 3 to visit France, Sweden, Switzerland, Greece and Turkey to study import markets there. Berland Trading Co. Inc., export distributor, plans to open export-import offices in London, Dublin and Brussels.

—o—

J. V. Freeman, assistant to vice president-sales, United States Steel Corp., New York, has been named as supervisor of new offices at Cleveland and Chicago, for the sale and service of coal chemicals produced by U. S. Steel subsidiaries. The Cleveland office, in the Terminal Tower Bldg., is in charge of **William K. Wood,** sales representative in that territory, and the Chicago office, at 208 South LaSalle St., is in charge of **William G. Souder,** Chicago district sales representative.

—o—

Preston C. Patch, purchasing agent for the Kropp Forge Co., Chicago, has been named chairman of the Business Survey Committee, Purchasing Agents Association of Chicago, for the 1947-48 term. He will be assisted by **Leonard L. Tess,** purchasing agent for the Independent Pneumatic Tool Co., Aurora, Ill., and **Carl G. Schreyer,** purchasing agent, Bell & Howell Co., Chicago. **Walter Armstrong,** who handled the association's publicity, has been appointed program chairman, and **Emil A. Fandell,** purchasing agent, Northern Trust Co., Chicago, has been named publicity chairman.

—o—

Walter A. Cary has been appointed to the sales and service staff of the Hanson-VanWinkle-Munning Co., Matawan, N. J., and will cover the field in the New York state territory.

—o—

Herbert C. Lindelow has been named vice president and general manager of Palmetex Corp., Pinellas Park, Fla., manufacturer of a variety of industrial and building materials. He also has been elected a director of the corporation. Mr. Lindelow previously had been connected with Asbestos Erectors Inc., Bound Brook, N. J., as chief engineer.

—o—

Carl P. Rapp, has been elected second vice president of International Telephone & Telegraph Co., New York, which he joined in 1929 as plant operation engineer.

—o—

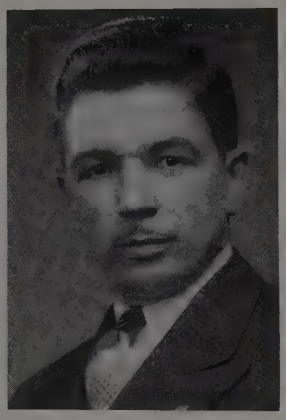
William H. Knowles has been appointed general manager of the newly created educational sales department of RCA Victor Division of Radio Corp. of America, New York. He has been manager of the company's educational sales activities for the last year. **Harry E. Erickson** has been named sales manager, and **Gordon W. Butler,** merchandising manager.

—o—

Eversharp Inc., Chicago, has named **Thomas Emerson** to the newly created position of vice president and assistant to the chairman and president of the company. He formerly held the position of vice president and general sales manager.

—o—

The General Steel Castings Corp., Eddystone, Pa., announces the appointment of **Harry R. Bartell** as assistant vice president of the corporation, and **James W. Cooke** as district manager-sales. Mr. Bar-



CLAUDE E. DAVIS

Appointed field engineer in the midwest for Goodyear Tire & Rubber Co., Akron. Noted in STEEL, Aug. 25 issue, p. 77

ROGER G. DeLONG

Appointed manager, Hydraulic Division, Twin Disc Clutch Co., at Rockford, Ill. Noted in STEEL, Aug. 25 issue, p. 72

W. B. GIBSON

Appointed sales manager, Hydraulic Division, Twin Disc Clutch Co., at Rockford, Ill. Noted in STEEL Aug. 25 issue, p. 72

ell has been manager of the western ales district, and will continue in charge f district sales, with headquarters at Granite City, Ill. Mr. Cooke has been a ales representative on New England and middle eastern railroads. He will maintain headquarters at Eddystone.

—o—

Dr. C. H. Samans has been appointed chief of the metallurgical section of American Optical Co., Southbridge, Mass., in the research laboratory. He succeeds **W. J. Wrighton,** who retired after 27 years of service as chief metallurgist.

OBITUARIES

Charles W. Kucher, 78, founder and president of the Olympic Steel Works and Olympic Foundry Co., at Seattle, died Aug. 20.

—o—

Alfred S. Harris, 56, president of the Harris-Seybold Co., Cleveland, manufacturer of off-set printing and binding equipment, died Aug. 22. He started in 1912 as a draftsman in the company founded by his father, Alfred F. Harris, and his uncle, Charles G. Harris. Mr. Harris had been a director of the Lithographic Technical Foundation.

—o—

William H. Fitch, 78, president and general manager, Richards-Wilcox Mfg. Co., Aurora, Ill., died Aug. 22 in that city following illness of a year. He had headed the company for 35 years.

—o—

Robert M. Little, 69, for 20 years associated with Fretz-Moon Tube Co., Butler, Pa., died Aug. 18. He had been assistant general manager of sales.

—o—

Fred P. Underwood, 62, vice president and secretary, Vanadium-Alloys Steel Co., Latrobe, Pa., died recently. He had been ill since suffering a heart attack in early January.

—o—

Mark A. Hammond, 60, sales engineer for the Electric Boat Co., New London, Conn., died Aug. 19 at his home in that city.

—o—

Walter G. Harrington, 59, founder and president of the Good Roads Machinery Co. of New York Inc., New York, died Aug. 16 at his home in Port Chester, N. Y. He also had been president of Conklin & Harrington Inc., New York, exporter of road machinery, and a director of the Penn Metal Corp., Philadelphia.

—o—

Mark Woodward, director of the Cement & Allied Plants Division of the Vulcan Iron Works, Wilkes-Barre, Pa., died Aug. 22 of a heart attack.

—o—

Laurence E. Power, 58, chief chemist at the Allen-Bradley Co., Milwaukee, died Aug. 18 after a heart attack. He had held the position of chief chemist of the company since joining its staff in 1918.

—o—

Herman G. Ernst, 63, one of the founders of the C. F. Ernst Sons Co., Buffalo, iron and steel construction firm, died Aug. 18.

—o—

Elmer A. Chandler, 79, president and founder of the Central Casket Co., Buffalo, died recently.

—o—

William J. Crosswell, 42, director of military contracts during the war for the Airplane Division of Curtiss-Wright Corp., New York, died recently. He left Curtiss a year ago to become assistant to the director of the Safety Bureau of the Civil Aeronautics Board.

—o—

Newton H. Manning, 59, managing director of Briggs Bodies Ltd., England, subsidiary of the Briggs Mfg. Co., Detroit, died Aug. 21 at his home in Grosse Pointe, Mich., where he returned a month ago from England, after having recuperated from a serious illness. Mr. Manning had directed war work in the 11 plants in England of the subsidiary company. Before going to England he had been sales manager of the Briggs company in Detroit.

—o—

R. E. Hansen, 75, former executive of the International Harvester Co., Chicago, and former head of the company's organization in Russia and France, died recently at his home in Chicago.

—o—

Arthur Stanworth, 59, owner of the Stanworth Tool Mfg. Co., Lebanon, Ind., died recently in a hospital there following a year's illness.

—o—

Bernt Pedersen, 92, former silverware designer, and before the war head of the Pedersen Mfg. Co., Mount Vernon, N. Y., died Aug. 23. In the 1920s he turned from silverware to making golf clubs, and his company has since concentrated on this production in the plant now located at Wilton, Conn.

—o—

Cornelius R. Sadler, 72, who resigned seven years ago as vice president of Babcock & Wilcox Tube Co., Beaver Falls, Pa., died recently.

—o—

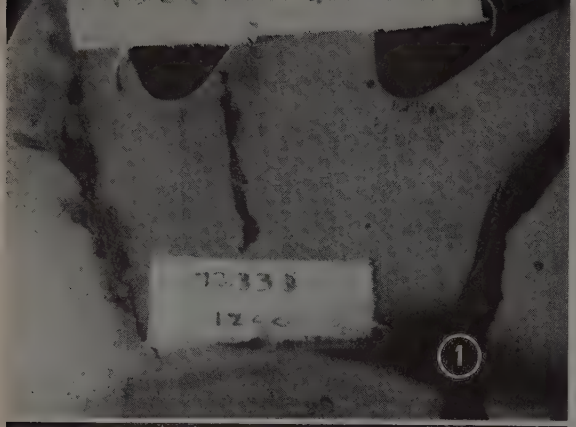
James McGill, 51, plant superintendent of Kennedy Valve Mfg. Co., Elmira, N. Y., died recently. He joined the firm in 1916, and was named plant manager about a year ago.

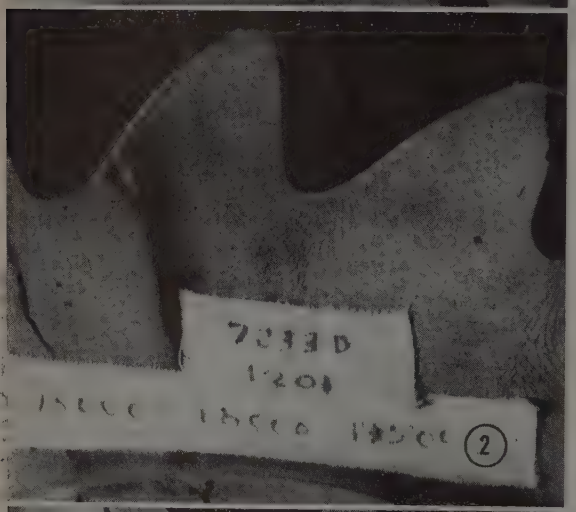
—o—

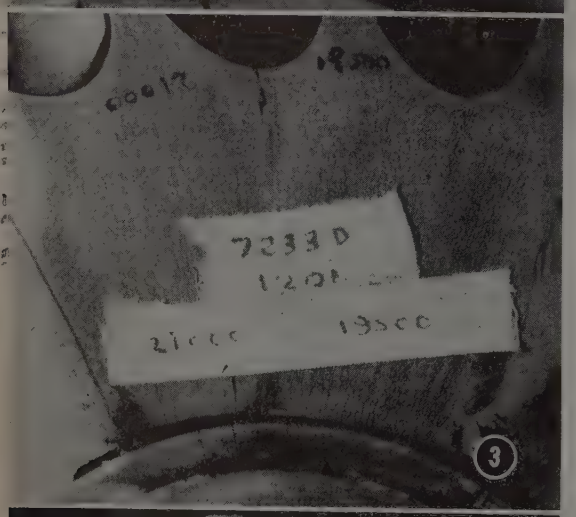
John T. Hazelton, 74, former salesman for H. Boker & Co., New York, died Aug. 20.

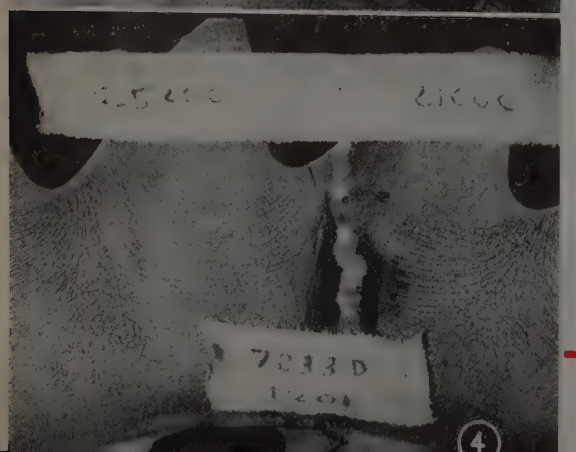
By HERBERT DOBKIN
Special Projects Department
M. W. Kellogg Co.
Jersey City, N. J.

Brittle









LARGE forged aluminum impellers are used extensively for air compressors in the construction of turbosuperchargers, gas turbines, and jet propulsion engines. These are usually made of 14ST or 24ST alloys, and operate at speeds up to 30,000 rpm., at which time they are subjected to extremely high centrifugal stresses.

However, due to the complicated shapes of rotors, these operating stresses are difficult if not impossible to calculate accurately by analytical methods. An attempt, therefore, was made to check the accuracy of the conventional calculation procedures by applying brittle lacquer techniques to the experimental measurement of the actual operating stresses. In addition, it was felt that the effects of stress concentrations could also be determined by this experimental procedure, since such effects are impossible to analyze mathematically with any degree of accuracy.

The experimental techniques involved in the use of brittle lacquers are fairly well known. However, for the purpose of completeness, they will be reviewed briefly herein. The concept of using crack patterns in brittle surface coatings for the purpose of evaluating the stresses in structural members is not new. However, it has been developed for commercial applications by Magnaflux Corp., Chicago, which now markets a series of brittle lacquers called Stresscoat. In all, about ten different lacquers are involved, each of which is applicable to a specific range of temperature and humidity conditions. The proper coating is selected for the conditions at which the tests are to be conducted by conventional wet and dry bulb thermometers.

These coatings are developed to the point where they give accurate quantitative data on both the magnitude and direction of the principal tensile and compressive stresses in the loaded part. Crack patterns form in the coatings at definite amounts of stress or strain; directions of the

Fig. 1—Stress patterns formed on discharge face at 15,000 *and* 18,000 *rpm. Note sharp feather edges at and between vanes*

Fig. 2—Stress patterns on discharge face, 15,000, 18,000 *and* 19,500 *rpm*

Fig. 3—Stress patterns on inlet face, 19,500 *and* 21,000 *rpm*

Fig. 4—Stress patterns on discharge face, 21,000 *and* 25,200 *rpm*

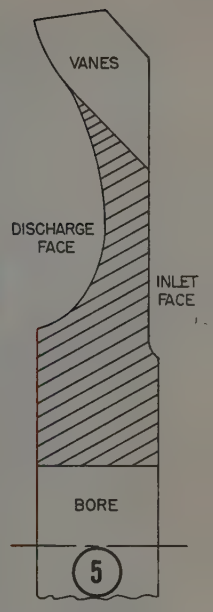
Fig. 5—Cross section of aluminum test impeller

Fig. 6—Completed stress patterns on discharge face, 25,200 *rpm*

Lacquer Technique

. . . used to test forged impeller design

Tests prove value of applying experimental methods to aid in solution of complicated analytical problems involving parts subjected to extremely high centrifugal stresses



cracks are always perpendicular to the direction of the principal stresses.

In practice, the surface of the piece to be tested is first cleaned, and then sprayed with a thin base coat of aluminum paint. This base coat is merely applied to increase the visibility of the cracks in the lacquer. The proper lacquer is then selected, for the prevailing temperature and humidity conditions, and the test piece is carefully sprayed with uniform coating of this liquid, about 0.005-in. thick. At the same time, a calibration bar is also coated in exactly the same manner, care being taken to make certain that the coatings on both the test piece and the bar are identical and of the same thickness.

The calibration bar is made in the form of a cantilever beam, and a convenient jig is provided for loading of this beam by deflection. The coated calibration bar is loaded in the jig, and the point along the length of the beam at which the cracks just start in the coating determines the amount of strain required to initiate the formation of the patterns.

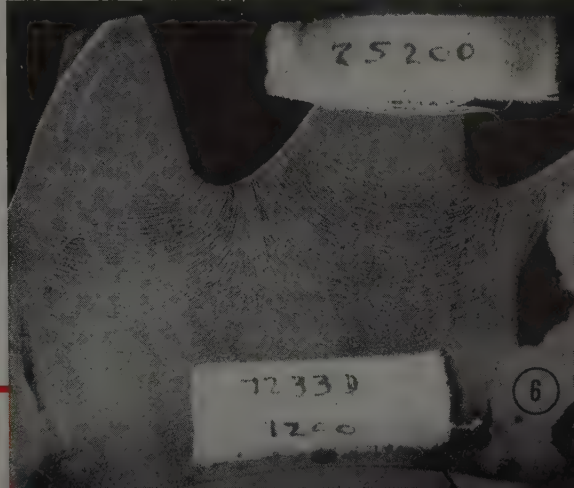
The test piece is also gradually loaded until cracks begin to appear in the coating, and the strain at which this occurs is the same as that in the calibration strip. The stress is then determined by multiplying the strain by the modulus of elasticity of the material being tested. For greater accuracy, individual portions of the test piece can be sprayed with different coatings, each of which begins to crack at a different stress.

A cross-section sketch of the impellers used in these experiments is shown in Fig. 5. For the sake of simplicity, and in order to save time, the tests were run in a spin-test rig rather than in an engine. By this means the impellers could be revolved at the desired speeds in an evacuated chamber by means of a simple air turbine. The turbine was equipped with an electronic speed control capable of an accuracy of about 2 per cent. The chamber was surrounded by heavy layers of armor plate as a safety precaution in case of a bursting failure of any of the impellers during the test. After reaching the desired speed, the turbine could be decelerated quickly by means of an air brake.

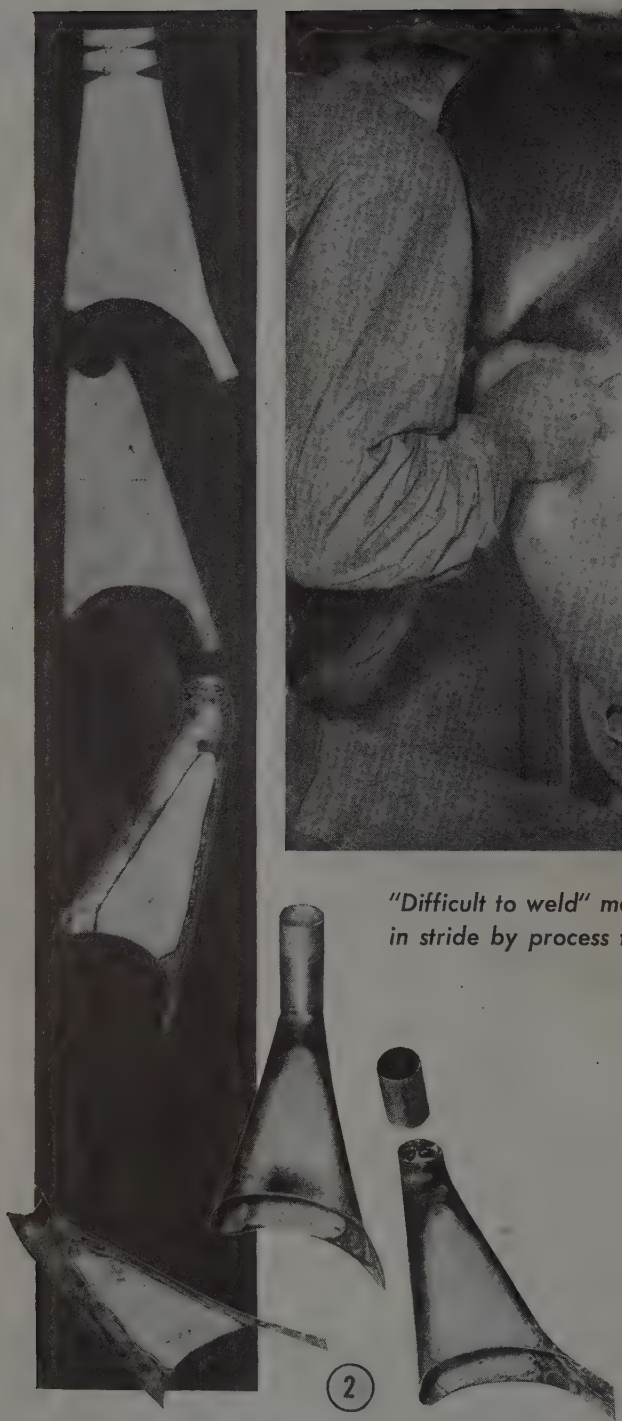
Brittle lacquer methods are particularly suited to tests such as these, since all the parts are subjected to the same test conditions, and the results are directly comparative. In addition, the brittle lacquers respond to very rapid loading rates, and are useful for dynamic problems of this type. It was realized that the quantitative results would be prone to certain inherent errors because of the techniques applied. These errors arise because the impeller is subject to a temperature rise (*Please turn to Page* 98)

RESULTS OF BRITTLE LACQUER TESTS

Actual Test Speed R.P.M.	Measured Stresses Corrected to 30,000 R.P.M.			Calculated Stresses At 30,000 R.P.M.		
	Location	Type	Value psi	Location	Type	Value psi
15,000	Between Vanes on Discharge Face	Tangential	53000			
18,000	No new patterns					
19,500	Bore on Inlet Face	Tangential	26000	Bore on entrance face	Tangential	29000
21,000	Bore on Discharge Face	Tangential	24000	Bore on Discharge Face	Tangential	29000
25,200	No new patterns					



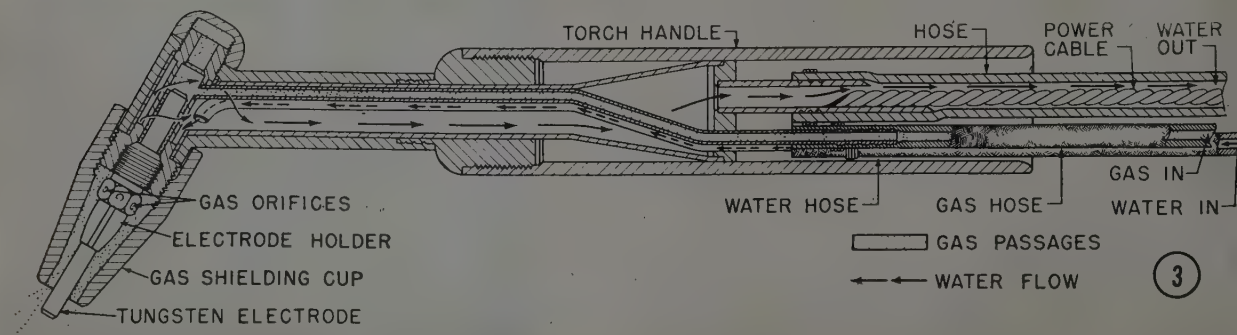
"Difficult to weld" metals and alloys in a variety of applications are taken in stride by process that uses argon or helium sheath to protect electrode and weld puddle



WHILE an inert gas protected arc process was the subject of laboratory research a number of years ago, World War II saw extensive use of the process which now is widely used to weld a number of "difficult to weld" metals and alloys. Among these are stainless, high-carbon and alloy steels, aluminum, brass, Inconel, Monel, Everdur and pure silver.

The Heliarc process, main features of which are shown in Fig. 4, differs from atomic-hydrogen welding in that the arc is formed between the tungsten electrode and the work, instead of between two electrodes. This type of welding with argon or helium is sometimes referred to as "inert gas-shielded arc welding".

An outstanding feature of the process is that all of these metals are fusion welded without the use of flux. In addi-



Production Jobs for Inert Gas Shielded Arc Welding

By H. T. HERBST
Development Engineer
The Linde Air Products Co.
New York

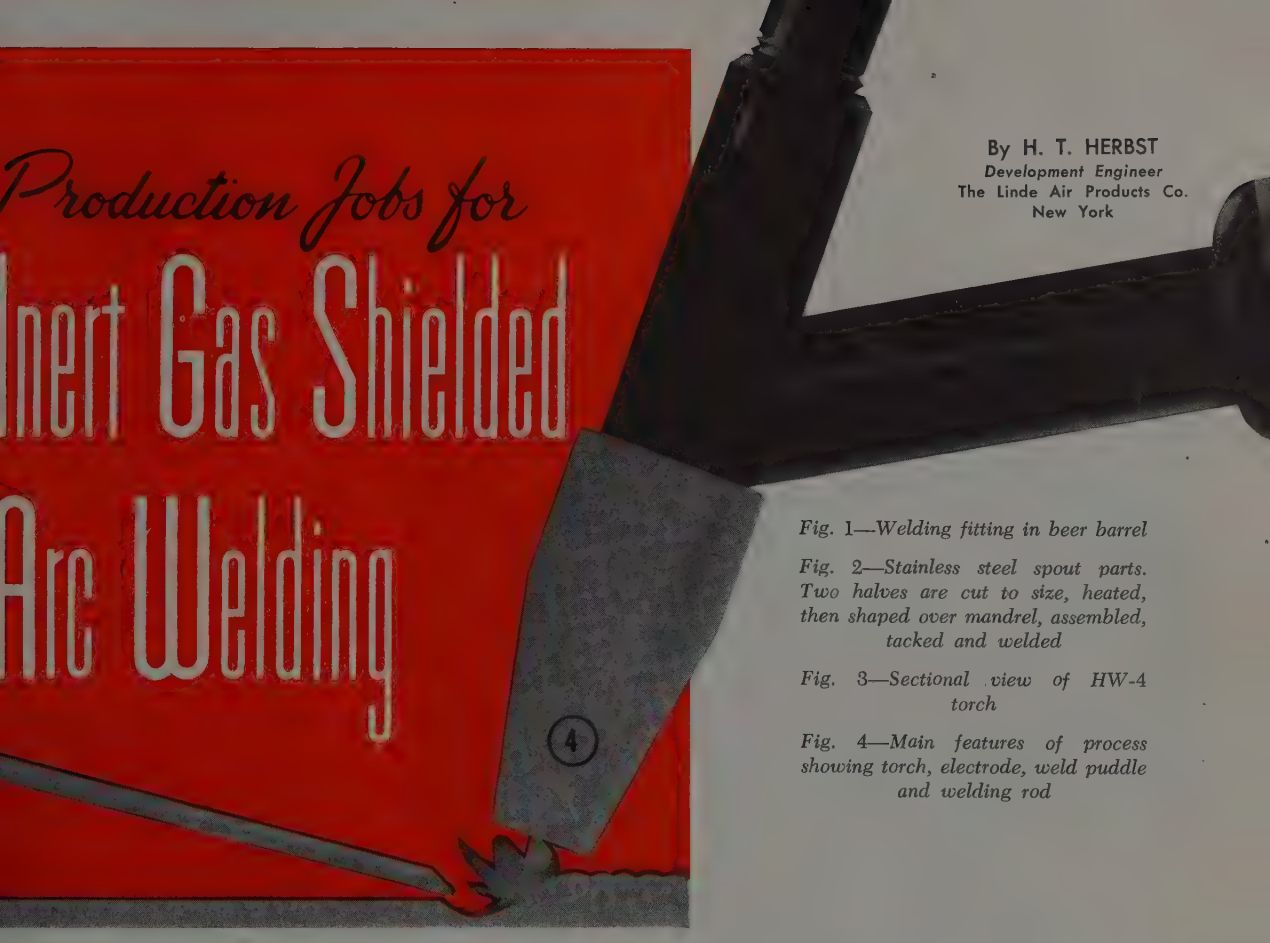


Fig. 1—Welding fitting in beer barrel

Fig. 2—Stainless steel spout parts. Two halves are cut to size, heated, then shaped over mandrel, assembled, tacked and welded

Fig. 3—Sectional view of HW-4 torch

Fig. 4—Main features of process showing torch, electrode, weld puddle and welding rod

ion, the process is used to braze pure silver and silver alloy coatings on steel, stainless steel, and aluminum, and for the deposition of hard surfacing materials.

Since 1942, this type of welding has undergone considerable development and improvement, with tremendous expansion in the usefulness and scope of the process. During this time, employment of argon in place of helium on the inert shielding gas demonstrated several distinct advantages. Argon is the only gas known today that is suitable for economically welding, by this process, aluminum as well as most all of the other commercially used metals and alloys. Moreover, the purity of argon available through commercial supply channels is maintained at a uniformly high level. This is significant because both the efficiency and reliability of the process depend in large measure upon freedom of the shielding gas from hydrocarbons, moisture, or oxygen.

Originally designed for work largely on magnesium, the Heliarc torch was meant to be operated on direct current with reverse polarity up to a maximum of about 125 amp. For this purpose the early torches were quite satisfactory.

RECOMMENDED WELDING CURRENT VALUES

Electrode Size In.	Current Range—Amperes A.C.H.F.	D.C.S.P.	D.C.R.P.
1/16	40-120	75-150	10-20
5/32	100-180	100-250	15-30
1/8	150-240	200-400	25-40
5/16	250-360	350-800	40-80
1/4	350-475	.....	80-125

With the application of the process to other metals, however, and the development of new techniques using much higher currents and also high-frequency stabilization currents, it was necessary to make certain changes to provide greater ruggedness and insulation without sacrificing lightness and maneuverability of the instrument. Development work on this problem led to a design that included complete insulation and water-cooling. Under conditions of present day usage, the nonwater-cooled type of Heliarc torch is entirely outmoded except for light and intermittent duty.

Fig. 3 shows, in cross section, the main construction features of the internal parts of the present torch. Fitted to the rear of the handle are three lengths of hose, with these functions: The first supplies argon; the second supplies cooling water; and the third serves as an outlet for the cooling water and also carries the power cable. Argon flows through the body of the torch into the rear of the gas chamber, which also serves as a receptacle for the unused portion of the tungsten electrode.

Because the power cable is completely surrounded by water, it is possible to carry extremely high currents on a relatively small, light, and flexible cable. With a water flow of less than one pint per minute, the torch has a nominal maximum rating of 250 amp, although it has been used at currents as high as 350 amp. To protect the torch against overheating in case the water supply fails, a fuse assembly inserted in the cable circuit automatically shuts off the power. This fuse makes use of the standard replacement cartridge-type links.

Safety precautions for this type of welding are similar

to those for metallic arc welding. The operator should wear a standard arc-welding shield, gloves, and heavy work clothing, and should have his sleeves rolled down.

Power Requirements: Investigation of current characteristics for Heliarc welding had an important bearing on the advancement of the process. In the first commercial applications on magnesium, the power used was direct current, reverse polarity. This was satisfactory for welding magnesium, but not for most other metals.

Major disadvantage is that when direct current, reverse polarity is used, the melting point of the tungsten electrode is reached with a relatively low current density. Thus, the maximum current which may be employed on a ¼-in. diameter electrode is approximately 125 amp. The limit for smaller diameters is proportionately less. When these current limits are exceeded, the end of the electrode forms into a fluid ball that ultimately leads to contamination of the electrode with the weld metal or vice versa.

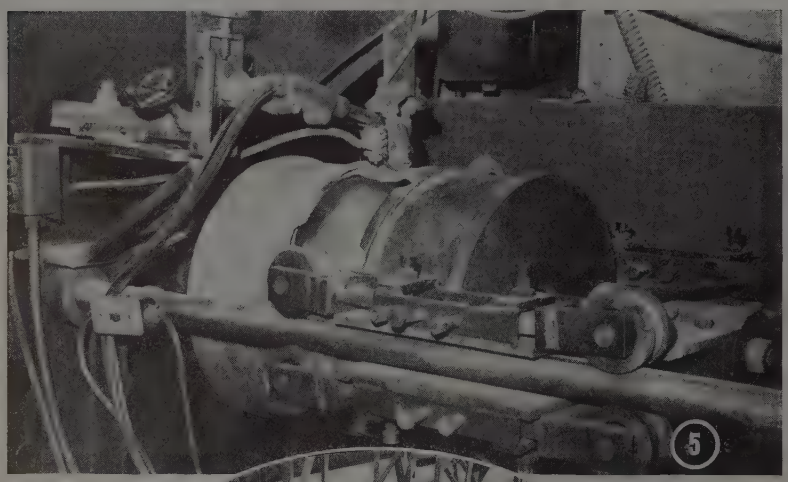
Use of direct current straight polarity, results in much less heating of the electrode, but is unsatisfactory on aluminum and magnesium. Direct current is, however, very suitable for stainless steel, copper and nickel alloys, and for brazing and hard-facing. For these applications it gives greater penetration or speed than alternating current.

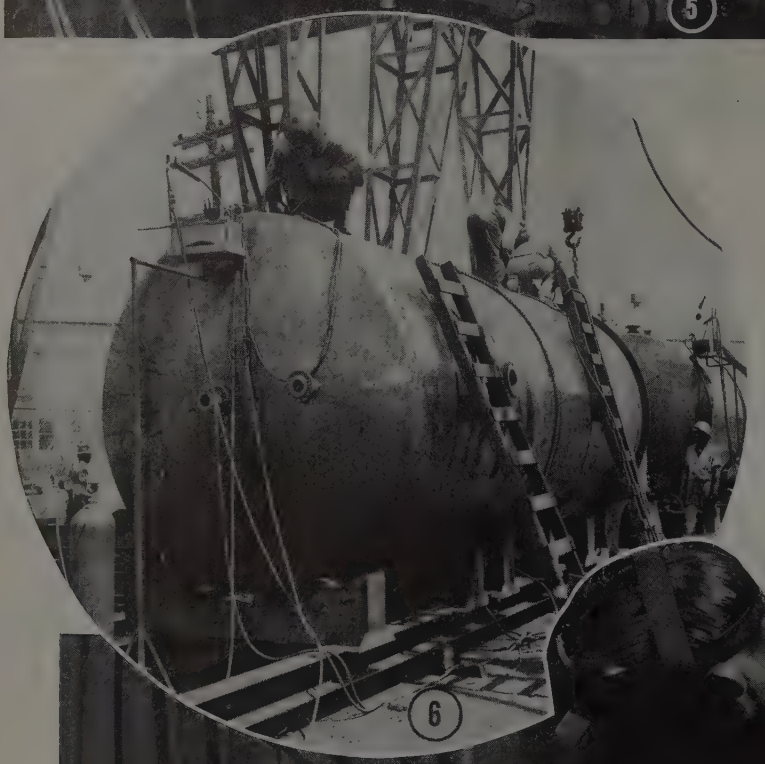
Carbon electrodes are used for easy starting in manual operations using direct current, straight polarity. These are used mainly in the fabrication of stainless steel, where some sticking of the electrode occurs if the proper technique is not employed. Since undue current densities on carbon electrodes will result in carbon addition to the weld, their use is questionable. Easy starting with tungsten electrodes is attained by a brushing action if the proper current density for the particular electrode is used.

When alternating current was tested it caused less heating of the electrode than the reverse polarity, direct current connection, but its use resulted in great difficulty in starting and in maintaining an arc, particularly in low-amperage ranges. To overcome this, high-frequency stabilized, alternating current used previously as a means for starting low-amperage hand welds by the metallic-arc process was introduced.

Standard generating equipment was therefore available from several sources,

(*Please turn to Page* 92)





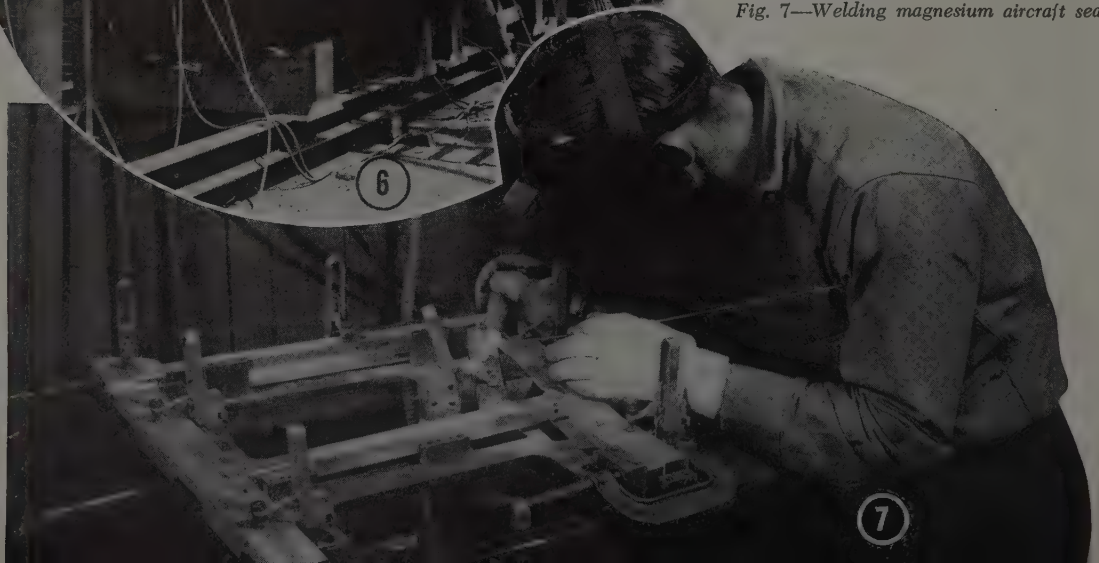


Fig. 5—*Welding jig for girth seam for barrel*

Fig. 6—*Welding a* 3/16-*in. Everdur tank*

Fig. 7—*Welding magnesium aircraft seat*

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Engineering News *at a Glance*

EVALUATES STIFFNESS: Practically any thin flexible sheet material—from light metal to rubber baby pants—can be measured rapidly and accurately for stiffness by a motor-driven instrument developed recently by W. & L. E. Gurley, Troy, N. Y. It also can be used to evaluate oil and finishes such as varnish and lacquer. Instrument includes a balanced pointer which pivots in jewel bearings and moves parallel to a sine scale mounted on the base. Pointer is loaded below the center with weights fastened several inches from the pivots. Arm carrying sample being tested is moved by a small geared synchronous motor controlled by a reversing switch.

COLD DRAWN PLATES: Metal rods of ¼-inch diameter are first electroplated continuously with perfect accuracy, then cold drawn down to diameters as fine as 0.0038-inch by a new process employed by the Kenmore Metals Corp., Warren, Pa. One inch of ¼-inch plated rod may produce as much as 100,000 feet of plated wire. According to Herbert Kenmore, president of the company, the wire can be bent, swaged, hammered, woven or twisted without flaking. It also can be welded to form a product without destroying the coating at the weld. Initial production in commercial quantities includes steel wire with nickel, copper wire with nickel or silver. Plans are under way to supply wire in other combinations such as copper on steel, zinc on steel etc.

LESS THAN 2 PER CENT ERROR: Thickness of metals and other materials may be measured where access from only one side is available with an instrument now being made by Sperry Products Inc., Hoboken, N. J. Utilizing supersonics for thickness measurement and flaw detection, its maximum error in measurement is less than 2 per cent of the thickness of the material. Thickness of tubing and flat parts between 0.005 and 0.300-inch can be read directly from the face of the oscilloscope screen. Indirect reading of thickness of parts up to 4 inches can be made with slight calculation. Instrument is readily adaptable for production line testing of thin pieces, or bonded or clad materials for internal defects or separations.

OIL PRESSURE EXTRACTION: Application of oil at pressures of 7000 to 8000 pounds per square inch is instrumental in reducing time involved in removing large antifriction bearings from machines in 10 or 15 minutes compared with several hours formerly required with the aid of pullers and jacks. Developed by SKF Industries Inc., Philadelphia, the method consists of pressuring oil from a hand-operated hydraulic pump between the bore of the bearing and the shaft on which it is mounted. This results in the inner ring expanding and "floating" on the oil film, enabling the operator to remove the bearing with ease. Method also can be used for coupling two shafts together.

ADOPTS STAINLESS CLADDING: Stainless clad steel furnished by Jessop Steel Co., Washington, Pa., was used by C. F. Braun Co., in the construction of two new refinery towers for Shell Oil refinery at Martinez, Calif. Shorter tower or flash column, 10 feet in diameter and 30 feet high was built entirely of 10 per cent clad plate 1¼-inches thick to withstand pressures of 110 pounds per square inch at a temperature of 900° F during process of expanding oil in eliminating carbon. Bottom portion of the 55-foot tower was built of 15 per cent stainless cladding to a height of 30 feet. At this point the taller tower operates at a pressure of 100 pounds per square inch at 800° F.

ENGINEERS NEED FACTS: The metalurgist cannot expect the engineer to understand the metallurgical implications involved in selection of steel for a given job, Gordon T. Williams, materials engineer, Pratt & Whitney Aircraft Division, pointed out to the Hartford, Conn. chapter of ASM recently. Rather, he said, the metallurgist must bend every effort to understand the mechanics and other aspects involved so that he may present the facts to the engineer as necessary to permit proper choice of metals. Steel for a given job, he emphasized, is usually selected by knowledge of past performance, so that accurate service records and careful analysis of failures are essential to future improvements.

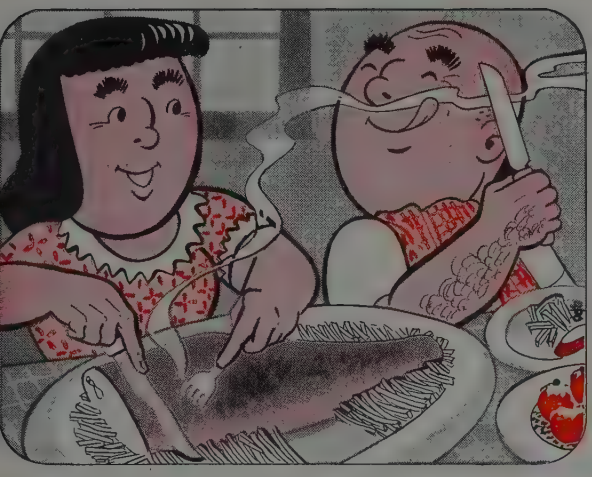
TRAVELING "ENGINEERS": Recognizing that highly technical nature of modern finishes and their application demands much more than mere sales contact between buyer and seller, leaders in this field are concentrating on training combination sales and technical service men who can solve 90 per cent of their customers' problems on the spot. Big dividends in better field representation are already being realized by one company, Interchemical Corp. Finishes Division, Cincinnati, through a program it instituted early last year. Here, course of practical and theoretical instruction is carefully spread out over a 12-month period with maximum degree of flexibility to suit each individual trainee. Company selects its "freshmen" representatives from leading universities in the country. These are screened to select those whose personalities and abilities are best suited to selling. Once accepted, the neophytes immediately begin training with a 2-week period in the maintenance department. This is followed by 23 other periods of training varying from 1 to 3 weeks each under the direct supervision of specialists or department heads. Supplementing practical experience of manufacturing, research and service is a series of 52 weekly lectures on chemical theory, sales psychology, selling methods, distribution and field service. During his first year in the field, a representative may return to headquarters at any time for additional information on new products or methods.

EXTENDS SERVICE: Besides manufacturing and marketing its Plastic-Seal coating and dipping tank equipment, Globe-Imperial Corp., Rockford, Ill., reports it now is providing engineering services for setting up conveyor systems on volume production dipping—to expedite parts through the packaging process. The coating is for transparent packaging highly finished parts such as bearings, threaded parts and cutting tools—for protection during storage or shipment.

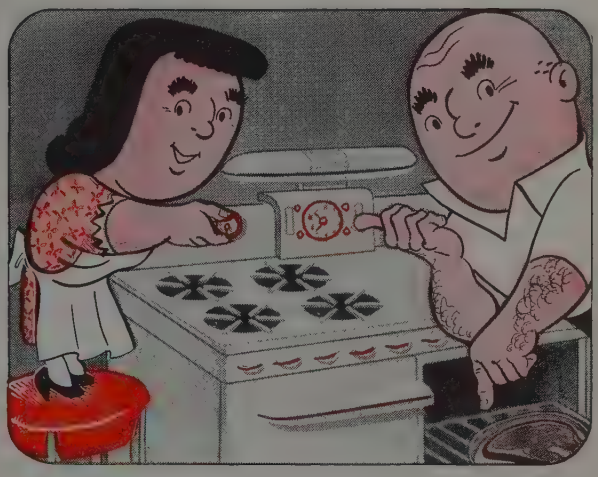
REDUCES DRIVER FATIGUE: Fifth wheel for trailer-tractor coupling now manufactured by Austin Trailer Equipment Co., Muskegon, Mich., eliminates trailer over-ride on down hill grades, and reduces driver fatigue and "kidney punching" due to chucking action of fifth wheels. The development locates all pulling forces in the same plane. Yoke type support brackets and rocker shafts, mounted in full floating rubber bearings to further reduce shock transfer from trailer to tractor, are positioned in a direct line with king pin draft, reducing parts strain to a minimum. Added feature of the fifth wheel is a side pull release mechanism that eliminates need for "getting under" to release the trailer from the tractor.

TOOK ITS OWN TEMPERATURE: When all types of complicated temperature-measuring devices failed to perform properly during research on gas-turbine wheels, engineers of General Electric Co. arrived at relatively simple solution. Turbine parts were made of a special metal alloy that revealed the

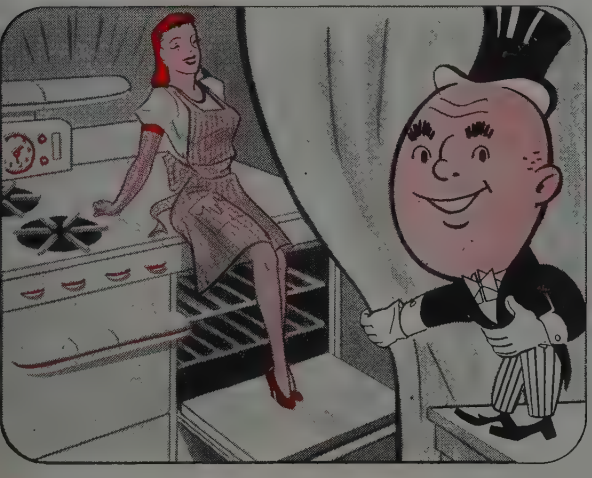
Help for handling hungry husbands



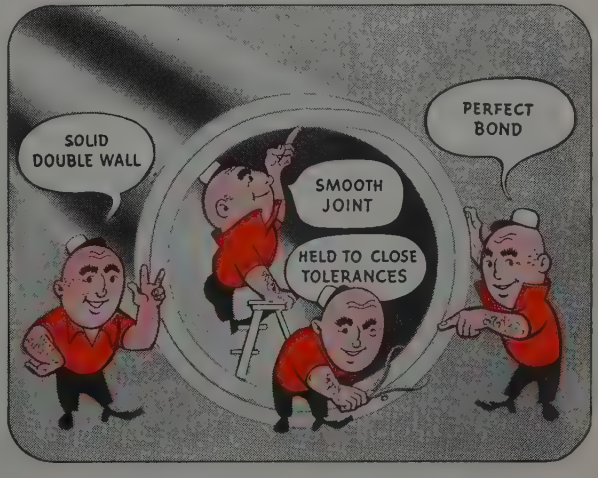
1. SIZZLING STEAK with potatoes and gravy . . . or fresh lake trout with french fries . . . whatever whets a man's appetite is the kind of dish a conscientious wife seeks to serve. She knows the way to a husband's heart is partly through his stomach. But she needs help to get on the path.



2. THIS VALUABLE aid comes from her modern gas range. With its oven regulator, its automatic timer and a dozen other important gadgets, the new range gives free play to her culinary talents. But gas ranges weren't always as dependable as those that grace today's kitchens.



3. BUNDYWELD* TUBING in supply lines, flash tubes and pilot light tubes helps give this new convenience to cooking. Similarly, Bundyweld Tubing contributes to the efficiency of hundreds of other modern products by carrying fuel, lubricants, oil, vacuums, hydraulic fluids, beverages and refrigerants.



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temperature by color. The alloy changed color at every 25° temperature change from 500 to 700° C. It then reverted to its original color and repeated the color scale from 725 to 900° C.

TAKES BIG PINCH: Huge pinch roll used by Kewanee Boiler Corp., Kewanee, Ill., to shape the wagon-top crown of its boilers does the job in one pass. In fact, in that one pass, it is capable of rounding a 20-foot steel plate 1½-inches thick to a small circle.

PILFERAGE STOPPER: Serious problems of pilferage and increased cargo handling costs during loading and unloading operations at water and land carrier terminals are drastically reduced by a 277-cubic foot welded steel interlocking shipping container. Developed by Dravo Corp., Pittsburgh, the weathertight packaging medium is designed to carry loads up to 12,000 pounds. According to the company, it also eliminates need for considerable amount of packaging materials. Materials handling costs were reduced about 70 per cent during one trial shipment of 12 containers of this type between an east coast port and Puerto Rico. Tiering expense was cut about 90 per cent; dock watching charges and checking and clerking costs were eliminated. Lugs are included on the container for crane handling, and sufficient clearance between the unit and the floor enables the use of fork trucks.

METHOD OF SWEATING BEARINGS: Bank of infrared lamps originally designed for baking paint on wartime magneto housings is providing Whitin Machine Works with an efficient method of sweating ball bearings onto studs. The Whitinsville, Mass., maker of textile machinery, according to the *Dragon*, published by Fafnir Bearing Co., uses the infrared method to expand the inner ring of the bearings a few thousandths of an inch by passing them beneath the lamps. These are then applied to studs and allowed to cool, to obtain a very soft solid fit. Device used by the company consists of a double 6-bank row of lights, a conveyor chain and a right angle drive unit adapted from parts of one of the company's machines. A temperature of 250° F is used during the expanding operations.

CIRCUS STUNT SOLVES PREHEATING: To build a number of ball mills constructed of armor plate and mild steel, J. P. Devine Mfg. Co., Mount Vernon, Ill., borrowed a stunt from the circus to provide the required preheating for welding. According to Lincoln Electric Co., Cleveland, equipment of which was involved in the circle of flame procedure, preheating was done by extending a gas line, perforated with pinhole outlets, around the end circumference of the shell. View above shows both preheating and welding in action

TAKES ON NEW LINE: In Kenosha, Wis., Macwhyte Co., reveals it now is making the Socketype cable terminals formerly manufactured by Paulsen & Nardon Inc., Los Angeles. The terminals consist of an alloy steel cadmium plated eye or fork type fitting, plus a stainless sleeve for swaging to cable. Besides saving cable, the company states, the terminals allow wire rope to swivel freely when load-free, eliminating kinking.

IMPROVED STEEL: New tests proving the superiority of electrolytic manganese over commercial low carbon ferromanganese in making certain stainless steels were reported recently by the Bureau of Mines, Washington. Latest tests were conducted by Timken Roller Bearing Co., Canton, O., with more than 50,000 pounds of electrolytic manganese prepared at the bureau's pilot plant at Boulder City, Nev. Results of using the pure metal were: Slightly higher average manganese recovery than with ordinary grades of ferromanganese; little or no carbon and greater ease of handling and storing.

GAS MOLECULES PROTECT STAINLESS: In a discussion in *Metal Progress* on the corrosion resistance of stainless steels, M. G. Fontana and F. H. Beck, professor of metallurgical research and director, corrosion research laboratory, and graduate student and research associate, respectively, Ohio State University, present strong evidence to support their proposed theory that passivation of 18-8S is due to a physically adsorbed gas. The gas is attached to the metal surface by van der Waals' forces. These forces represent poor adherence or weak bonding. Texts on physical chemistry state that gases held by these forces can be removed by evacuation. On the other hand, chemically adsorbed gases cannot be removed by evacuation, according to the literature. Chromium oxide is a stable compound that does not break down under low pressures at room temperature. Electron diffraction studies show no oxide films on passivated surfaces. Since passivated surfaces become corrodible after exposure to vacuum, it is concluded that protection is in all likelihood due to a weakly held layer of gas molecules.

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By ROBERT MAWSON

Internally Grooving Castings

. . . . . with a special tool

MACHINING a large unit housing presented an interesting problem. The casting, a section of which is shown in the drawings, is held in a fixture when boring its 1½-inch hole, as well as several other holes. Operations were performed on an horizontal boring machine. The several tools used for the drilling, reaming and boring operations were guided through bushings in the fixture in the conventional manner.

Special grooving tool and method used to machine the two grooves is shown here. The bar of the tool was machined to the proper diameter to suit the sleeve of the machine and of the correct length over all to operate in the fixture.

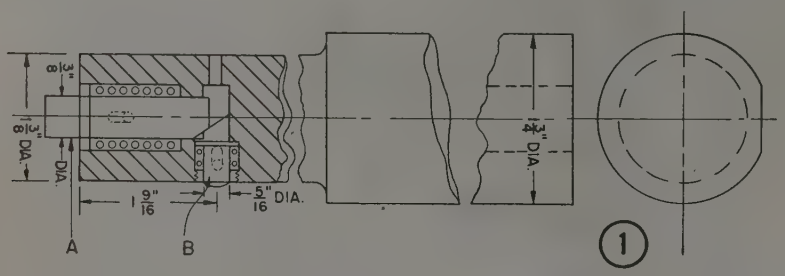
Referring to Fig. 1, this machine steel bar is provided with two tool steel sliding members located at a 90-degree angle. The horizontal member A is the operating feature of the tool and is made with an angular face which slides against a mating angle on the member B. These angles are ground to shape and then hardened. On the outer end of B a contour is ground suitable for forming the grooves in the bored hole of the castings.

When the tool is in operation the member A is forced against member B which is pushed out by reason of the angular contacts. A flat is machined on each of the members and screws through the bar control the travel of the members and also hold them in proper alignment.

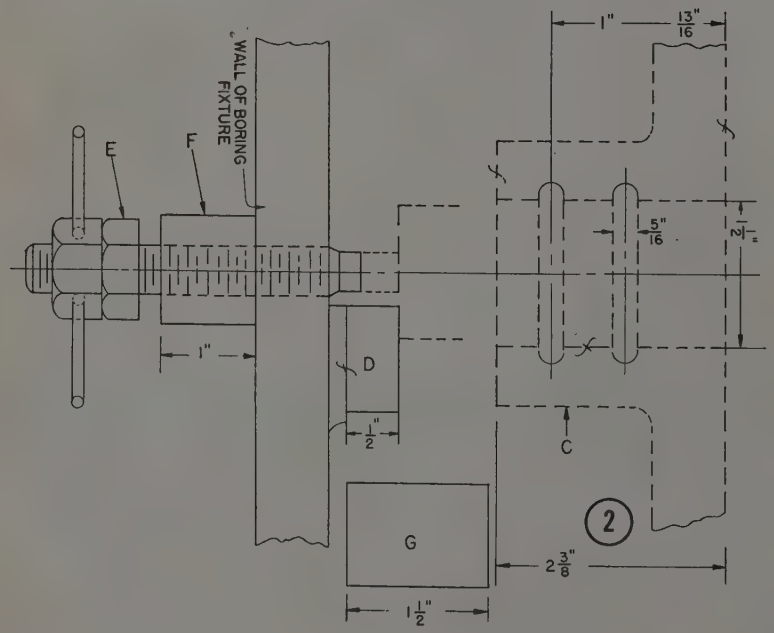
Each sliding member is fitted with a spring which returns the members to their dead or normal position when pressure is removed from the outer end of A.

To use the grooving tool, the casting C is first located and held in the fixture in the usual manner and the several holes in the piece machined to their proper sizes. The grooving tool is then placed in the 1½-inch hole and fastened in the sleeve of the boring machine head for machining the first groove.

It is now fed by the machine through the hole until the end of the tool comes in contact with the locating block D which as been placed on a machined pad on the fixture (see Fig. 2). The head of the machine is fastened in this position so that the tool proper will not move either in or out.



AN INTERNAL GROOVING TOOL



Forming the Groove

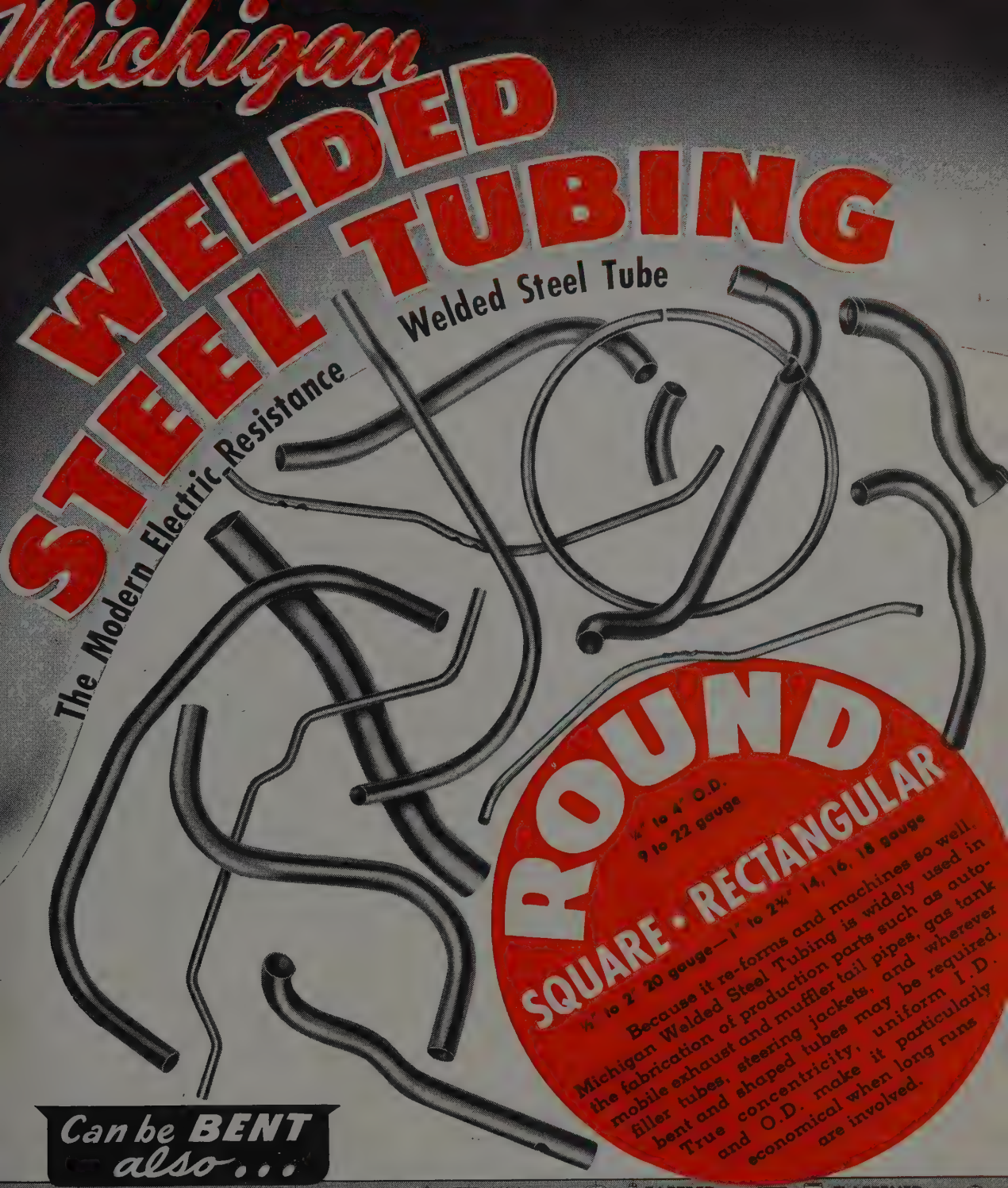
Locating block is now removed from the fixture location and the machine is put in operation. The operator turns the screw E and this action forces out the grooving tool B and forms the groove in the casting. After the correct depth has been machined, as determined by the nuts on the screw, the screw is drawn back and the springs in the tool force back the members to their noncutting position. Nuts on the screw can be adjusted and then fastened to obtain any depth of groove required by the job.

Tool bar fastening is then released and the tool drawn back through the hole. The screw is also taken out of the fixture and the bushing F removed. Locating block G is now placed on the machined pad formerly used by D and the tool located in a manner similar to that described.

The second groove is now machined. Difference between the heights of the blocks D and G is 1 in. and the length of the removed bushing on the screw is also 1 in. The screw in the second position, without the bushing, permits the tool to machine the second groove 1 in. from the first. The finish machined casting may now be removed from the fixture after the tool has been released from the head of the boring machine.

Michigan WELDED STEEL TUBING

The Modern Electric Resistance Welded Steel Tube



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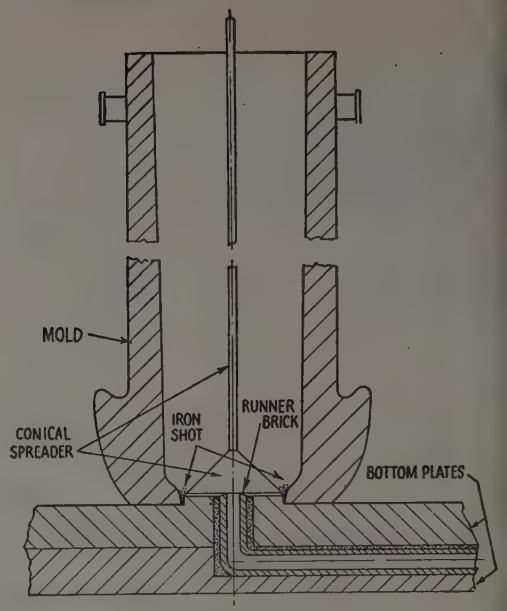
Sealing

BOTTOM-POURED INGOT MOLDS

With Cast Iron Shot



REDESIGNED molds and cast iron shot are being used in combination to do away with the problem which has plagued bottom pouring for some time—breaking the ingot away from the mold. Heretofore a flash of steel entering the joint between the mold and the bottom plate, when the open-bottom mold is used, has made the ingot stripping operation difficult, often necessitating use of considerable force to break or shear the obstruction. Damage to ingot molds and loss of valuable time were the expensive results.

Stripping difficulties have been overcome, in the case of bottom-poured ingots, reports W. Ash in the *Iron and Coal Trades Review*, by use of a redesigned bottom plate which has a raised portion or spigot which protrudes about 1 in. from the base plate on which the ingot mold sits. The raised portion follows the inside contour of the bottom of the ingot mold and has sufficient clearance to allow the mold to surround the projection and seat squarely on the base plate proper. Space between the spigot and mold is sealed with the cast iron shot, as shown in the diagram.

This development is seeing its widest use on molds for ingots from 1½ to 4 tons as these are the approximate limits of the bottom pouring technique at present. Shot of ⅛-in. diameter is directed into position after the mold is set by means of a conical spreader (see diagram) of light gage sheet. It is distributed around the spreader from the top of the mold, only a few ounces being needed to make an effective seal.

Fear that the cast iron shot in contact with liquid steel would contaminate the ingots has been proved groundless. Metallurgical examination of ingot bottoms has shown that the shot apparently behaves in the same way as cast iron molds, an immediate chilling action being set up in the ingot by the shot. Only a slight carburizing effect was found in places where shot had adhered to the ingots and this effect reportedly is easily removed by sealing which occurs when ingots are heated for hot working.

Installation of spigot bottom practice has largely solved stripping problems associated with bottom poured wide-end-up ingot practice, ingots being quite free in the mold once the feed runner is broken. If sufficient protrusion is present they may be lifted from the molds directly. Otherwise, the usual method of inverting molds by crane is used to let the ingots fall from the molds.

Reduction in the stripping cycle to two lifting operations is possible with this method. The mold containing the ingot is lifted by top lugs from the casting position, breaking the feed runner, and still held by the top, is canted against a convenient object. Upon reaching a position somewhat below horizontal, the ingot falls out and the mold is placed on its cooling station. The second lift consists of placing the ingot.

This new sealing technique is said to have proved beneficial in reducing stripping time and increasing ingot mold life. A cast of 30 ingots weighing 2 tons each may be stripped in less than 1 hour, whereas 3 hours formerly were required. Average mold life in the case of 12-sided molds has increased from 40 to 120 ingots per mold, the British paper states, some having even had lives of 200 ingots. This improvement is attributed to molds no longer being damaged by bumping in order to loosen ingots which do not readily leave the molds.

Machinery of Air Controlled Power Shovel Simplified

Twenty-two ball and roller bearings are incorporated in the design of the new ¾ cu yd power shovel, made by Marion Power Shovel Co., Marion, O., which features air control, a simplified machinery deck with only two shafts across the deck and simple changeovers for front-end equipment. Front end conversion to shovel, dragline, clamshell, crane or backhoe, requires no changes of drum lagging, sprockets, levels, etc., the company states.

Air control covers all digging motions, gear changes and operation of steering clutches, propel and swing brakes, dipper trip and engine clutch. A maximum of 12 lb pressure operates any air control lever of the shovel, which has only 12 gears in its entire mechanism, it is reported.

Parts, Assemblies Testing Symposium Published

Sponsored jointly by American Society for Testing Materials, Philadelphia, and the Society for Experimental Stress Analysis, a symposium on testing parts and assemblies has been published by the former organization. Contained in the 96-page publication are six technical papers by authorities in their various fields, intended to promote a better knowledge of the correlation of testing and serviceability.

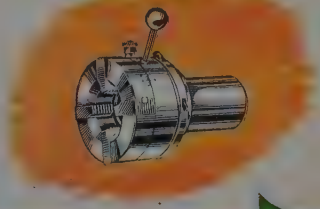
Papers included are: Fatigue Strength of Lap Joints in Some Magnesium Sheet Alloys; Fatigue Characteristics of Magnesium Castings; Endurance—A Criterion of Design; Pneumatic Fatigue Machines; Automotive Rear Axles and Means of Improving Their Fatigue Resistance; and Stress Concentration and the Fatigue Strength of Engine Components.

THIS MERGER WAS A "NATURAL"

In 1944, "Greenfield" took one of the most important steps in its 75 years of pioneering service in the threading tool field. It acquired The Geometric Tool Company of New Haven as a major subsidiary. Geometric has a reputation nearly as old and as famous in its field of Self-Opening Die Heads and Collapsing Taps as that of "Greenfield" in the solid threading tool field.

The two go together naturally to complete a line of threading tools and gages for every size and type of job. It adds Geometric's 54 years of know-how to "Greenfield's" 75 years to make a total of *129 years of pioneering research available from one source.*

This simple, rugged and precise Style D Self-Opening Die Head is one of Geometric's major contributions to the complete "Greenfield-Geometric" line of threading tools and gages. It is essentially designed to cut standard threads even though they may be of large diameter and coarse pitch.



GTD Greenfield 75th YEAR

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Electronic Impulses

Gage 3600 Pieces Per Hour

ELECTRONICS make the actual measurement, and control the mechanical devices in the automatic gaging device which reportedly is capable of sorting 3600 plastic fountain pen barrels per hour—one every second. Barrels are inspected for accuracy of diameter and length, being sorted into six acceptable size categories by the machine, the Sortron-Matic, developed by Federal Products Corp. of Providence, R. I., for Esterbrook Pen Co., Camden, N. J.

Over and under-size pieces are automatically rejected while acceptable size categories vary by only 0.0015-in. According to the pen manufacturer, simultaneous control of two dimensions, greater speed of work handling and inspection and added accuracy have effected labor savings which are expected to pay for the gage in little more than a year.

Shown diagramatically is the inspection cycle of the gage. Fed manually, the barrels are inspected in the following sequence: Acceptance or rejection for length, over and under size parts falling into a reject tote box and satisfactory parts continuing on through the gage; acceptance or rejection for diameter, rejects again falling into a second reject box; parts passing length and diameter inspection are sorted into four usable diameter groups, each with a tolerance of 0.0015-in.

Eight separate counts are taken—four acceptable categories and four rejected groups. When any of the size groups reach 1000, the device automatically shuts off. The barrels are fed into the gaging mechanism by a reciprocating feed arm, driven by a small electric motor, swinging them through the inspection to disposal position. As one part is gaged and ejected into disposal, the next barrel enters the mechanism. A second gage now being built for Esterbrook is to utilize a hopper feed instead of manual loading.

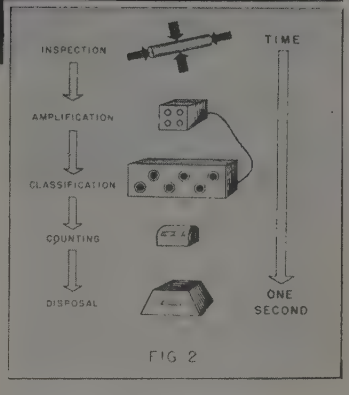


FIG 2

Change in Cam Mechanism Reverses Engine

Internal combustion engines may be operated in either a clockwise or counter-clockwise direction if the motor is provided with a simplified cam mechanism, patented by Charles P. Palmer, Urbanna, Va. According to the inventor, its use permits the crankshaft of a marine engine to be coupled directly to the propeller without the necessity of a reverse gear or clutch mechanism.

Change of valve timing for both directions of engine rotation is entirely automatic and requires only the turning of the flywheel in the desired direction, either manually or through starting mechanism, it is stated. There are no levers, gears or other mechanisms to be moved or changed and the invention, bearing patent No. 2,139,184, may be incorporated in engines with little or no additional cost, Palmer reports.

Copper Impregnated Graphite Material Invented

Invention of a method of producing a copper or copper and iron impregnated graphite material for use as commutator brushes, bearings and the like, is noted in the register of patents available for licensing and for sale as owned by Ralph H. and Dave Steinberg of Chicago. Bearing patent number 2,415,464, the process comprises treating kish with a soluble salt solution such as copper sulphate, one part of this substance to five parts of water providing a solution of proper concentration.

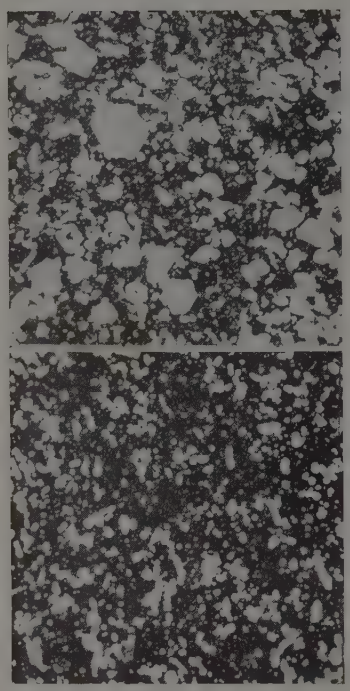
Kish is mixed with the copper sulphate solution, heated and maintained near boiling. While heating the iron in the kish is dissolved and an equivalent amount of copper is deposited in its place.

—o—

Correct distribution of incoming hard water so that it will not channel or short circuit through the bed of zeolite is a feature of the Liquon water softener announced by Liquid Conditioning Corp., 114 East Price street, Linden, N. J. A similar distribution system controls the flow of the outgoing dirty backwash water and the incoming brine which regenerates the zeolite. Synthetic resin zeolite is used, its great capacity reducing the size of the unit. Water that is produced contains 0 to 2 ppm calcium carbonate.

High Impact Strength Die Steels

Provided by Latrobe Process



DISPERSED segregate steels, made by a process in which an even dispersion of free carbides is achieved in the body of the steel, eliminating the grouping together of carbides in a brittle central mass, are now being applied to die steels by Latrobe Electric Steel Co., Latrobe, Pa., after having been first introduced in high speed tool metals in 1945.

Reported to possess an exceptionally high impact strength, the qualities imparted to the steel give it bar uniformity, substantially lessened warpage and breaking and more consistent results under heat treating.

Photomicrographs are of ordinary (top) and dispersed segregate die steels (bottom), cut from center sections of 4-in. round stock, magnified 250 times. Samples were hardened, tempered, polished and etched to bring out the carbide structure clearly.

Also note the even dispersion of the dispersed segregated, or Desegatized sample.

Four high carbon, high chromium content grades of die steel are being produced by the process. Their characteristics are listed in the accompanying table.

Die Steels	Hardness Rockwell C	Desegatized-brand Impact Strength Foot Pounds	Old Process Impact Strength Foot Pounds	Type
Select B	62.0	69.5	50.0	Modified chrome—air hardening
G.S.N.	59.5	25.0	22.0	High carbon—high chrome oil hardening
Olympic	60.0	70.0	61.0	High carbon—high chrome air hardening
Cobalt Chrome ...	60.0	55.0	44.0	Special high carbon—high chrome—cobalt—air hardening

Brush Characteristics Measured by Dynamotor

Advance in the search for better brush application data has been made in the dynamotor method for measuring dynamic brush characteristics which also serves to improve accuracy and speed of brush application engineering. This was brought out by C. J. Herman, engineer in the fractional horsepower motor engineering division of General Electric Co., Fort Wayne, Ind., before the summer meeting of the AIEE. Brushes to be tested are installed on low voltage end of a test dynamotor and contact drop and friction characteristics are taken over a brush temperature range of about 50 to 150° C.

First method is to maintain constant dynamotor ventilation, the load carried producing the desired brush-face temperature. Second, current density is maintained constant and dynamotor ventilation is varied to produce the desired temperatures. Before and after each test run readings are taken at zero current density, giving a check upon accuracy of test methods and excellent indications of filming characteristics of the brush, Mr. Harmon asserted, as well as the degree to which the brush face undergoes permanent change.

Brush application data on more than 100 designs of small alternating and direct current machines has been given General Electric by the dynamotor method, Mr. Herman stated. Range has been from 6 to 4 hp and from 1725 to 15,000 rpm.

New Earthmover Electrically Controlled

Loads as large as 35 tons or 26.1 cu yd may be moved with the newly developed high speed, electrically controlled earth mover, the model B Tournapull, made by R. G. LeTourneau Inc. of Peoria, Ill. Powered by a 225 hp diesel engine, the prime mover has four speeds forward, two in reverse and will travel up to 15 mph, the manufacturer states. It may be used in moving earth, coal and other material, either in construction or to or from storage areas.

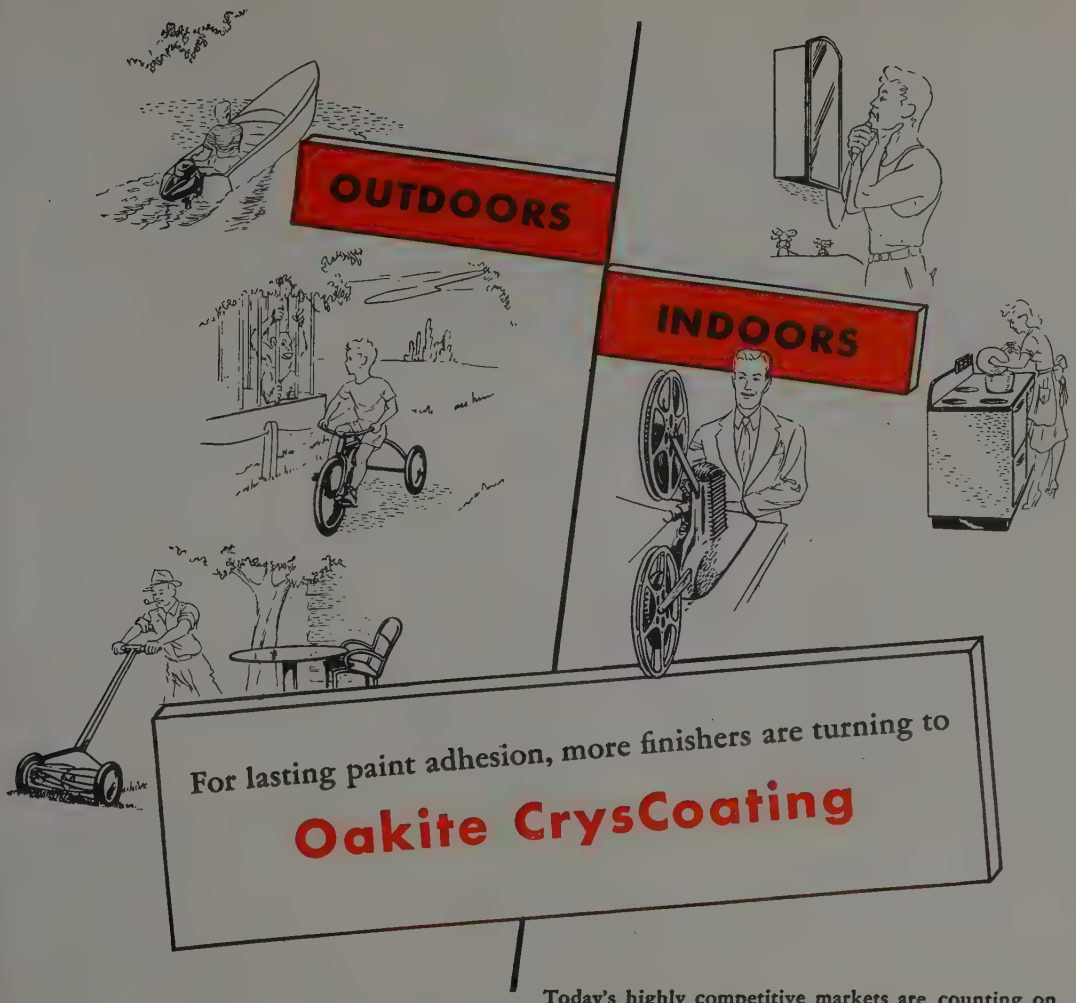
Steering, carryall, bowl, apron and tailgate are controlled by individual alternating current electric motors, of a type said to be built to handle heavy work. All of this mechanism is controlled by means of buttons on the Tournapull dashboard. Transmission is of constant mesh type, nonstop speed selection being attained by moving a lever into desired position.

Proportioning differential automatically supplies the most power to the drive wheel having the firmest footing, it is reported. Neither wheel will spin independently of the other. Both pulling unit and scraper are mounted on 24.00 x 29 tapered bead tires. It is stated that the complete unit can make a 90 degree turn in either direction.

Limits and Fits Standard Developed by ASA

With its purpose to serve as a guide to the machine designer in keeping to a minimum the various tools and gages required to produce and inspect cylindrical holes and shafts or other component parts with cylindrical surfaces, a new standard entitled Limits and Fits for Engineering and Manufacturing (B4. 1-1947) has been developed by American Standards Association. It is a partial revision of the Tentative American Standard of Tolerances, Allowances and Gages for Metal Fits approved in 1925.

In the new standard, a table of preferred basic sizes covers the range up to 4 in. with as few as 46 diameters for holes and shafts. It recommends use of a series of preferred tolerances and allowances to keep down the variety of limiting dimensions of component parts and hence the cost of manufacturing.



For lasting paint adhesion, more finishers are turning to

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Today's highly competitive markets are counting on manufacturers to produce a quality product at low unit cost. And so many metal finishers in turn are counting on Oakite CrysCoat Process for help in meeting these new market demands. Here's why:

CRYSCOATING lightly cleans; conditions surfaces for tenacious paint adhesion; prevents rusting . . . in one operation. *Saves production time.*

CRYSCOATING is a simple, low-cost procedure for producing a paint-holding phosphate film. *Keeps rejects down.*

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LETTERS *to the Editors...*

Metal Cleaning

Would it be possible for you to forward any factual information regarding a multiple phase solution metal cleaning process, as mentioned in the May 5 issue of STEEL?

Our concern has been encountering difficulties in maintaining a noncorrosive surface on mild steel from the time that it is received until the time it is processed.

The above mentioned article illustrates the organic and inorganic solutions that have a rust preventative action as well as the cleaning operation.

E. F. Mellinger
Tool Engineer
Ryan Aeronautical Co.
Lindbergh Field
San Diego 12, Calif.

Jas. Rowan Ewing, assistant to the president, Solventol Chemical Products, Detroit, and author of the article mentioned above (Metal Cleaning—Methods and Results, STEEL, May 5, 1947 issue, page 100) states: "Dependent upon the condition of the steel, particularly as to the absence of rust when received, same could be held against rust by a dip or spray in a solution of Solventol No. 33, followed by an air blow-off. This would hold against atmospheric corrosion up to 30 days or more. However, in most instances steel free from rust is not received by fabricators; consequently it is necessary to pickle to remove the rust, unless rust is later removed in machining operations." A technical bulletin, sent by the author, is being forwarded to the writer.—ED.

Flexible Plate Fastenings

In reading the June 16 issue of STEEL, I was particularly attracted to your article on page 120 entitled "Welded Ship Fractures". According to the engineer who sold the United States the concrete ships built during World War I: "Good as welding is in its right place, it does not provide all that's needed in the (ship building) field. I fear that it will fare the same way my concrete ships did, which were a complete failure."

He predicted that my Permagrip development (see STEEL, Feb. 26, 1940, issue) would find universal adoption in ship building. Reasons for this are that it makes the structure flexible, it fully employs the tensile strength of the plates, the frame-engagement principle relieves all fastenings of shear action with fewer fastenings being needed and every plate is "accessible" for maintenance, repair or replacement.

Attachment of extremely thick plates by my frame engagement principle is as follows: A solid frame engaging bead, integral with the plate and shaped to conform to the inner channel walls, extends all around the entire periphery of the panel. At a few convenient spots, the bead is drilled part way from the inner side and tapped to take machine screws. Caulking may be forced in where needed at any time, merely by removing the screw and replacing. This construction provides a unique four way bracing effect, flexibility and strength—the musts in ship building—being provided.

Ernest Schaefer
4176 West 208th St.
Cleveland 16, Ohio

Reader Schaefer is referring to the article on the investigation into the ship breakages which "created major uncertainties for the steel and shipbuilding industries." Headed by Rear Admiral Harvey F. Johnson, engineer-in-chief of the United States Coast Guard, the investigation was carried out with the services of the welding group of the War Metallurgy Committee of the National Research Council. Results of the investigation, however, vindicated the all-welded ship. Only one-fifth of the 5000 welded ships built sustained fracture casualties and only 127 were classified as serious. It was also stated that "there is much more work of a fundamental research character in the field of ship design and construction to be done."—ED.

Sir James Concurs

With reference to my article in STEEL, July 29, 1946, entitled "Speculations on Steel Making of the Future", you may find it of interest to note that in the paper by Sir James Chadwick entitled "Atomic Energy and its Applications" he says, under "Production of Useful Power":

> "The relative freedom from supply problems, once the plant is set up, opens up the possibility of stimulating industrial development in isolated parts of the world where coal or water power are not readily available.
>
> "For the same reason, it might prove advantageous to establish atomic energy units in close proximity to mines, more especially in those cases where the ores have to be transported long distances in their crude states."

While he recognizes the fact that there will be development difficulties, he says:

> "It is not unreasonable to expect that future development of atomic energy will result in a material reduction of costs and perhaps make the uranium reactor a direct competitor with other power plants."

Note how Sir James expounds the idea of using atomic energy for the reduction of ores at the mine. This parallels the same idea which I put forward in my article one year ago.

Ernest Newman
516 First Avenue
Bethlehem, Pa.

Chemical Thermodynamic Properties Tables Issued

First tables in a comprehensive compilation of "Tables of Selected Values of Chemical Thermodynamic Properties" have been made available by the National Bureau of Standards, Washington. Compiled in co-operation with the Office of Naval Research, these tables are said to bring all available data together for the first time in a form readily accessible to the engineer, chemist and physicist in scientific and industrial research. With accurate values of the appropriate thermodynamic properties available, it therefore is possible to calculate the optimum conditions for manufacturing processes involving chemical reactions.

Values of thermodynamic properties are presented in three series of tables, each internally consistent in that all known physical and thermodynamic relations existing between the properties in the several tables are satisfield by the tabulated values of these properties. Complete reference to the data from which the selected values have been obtained will be published later.

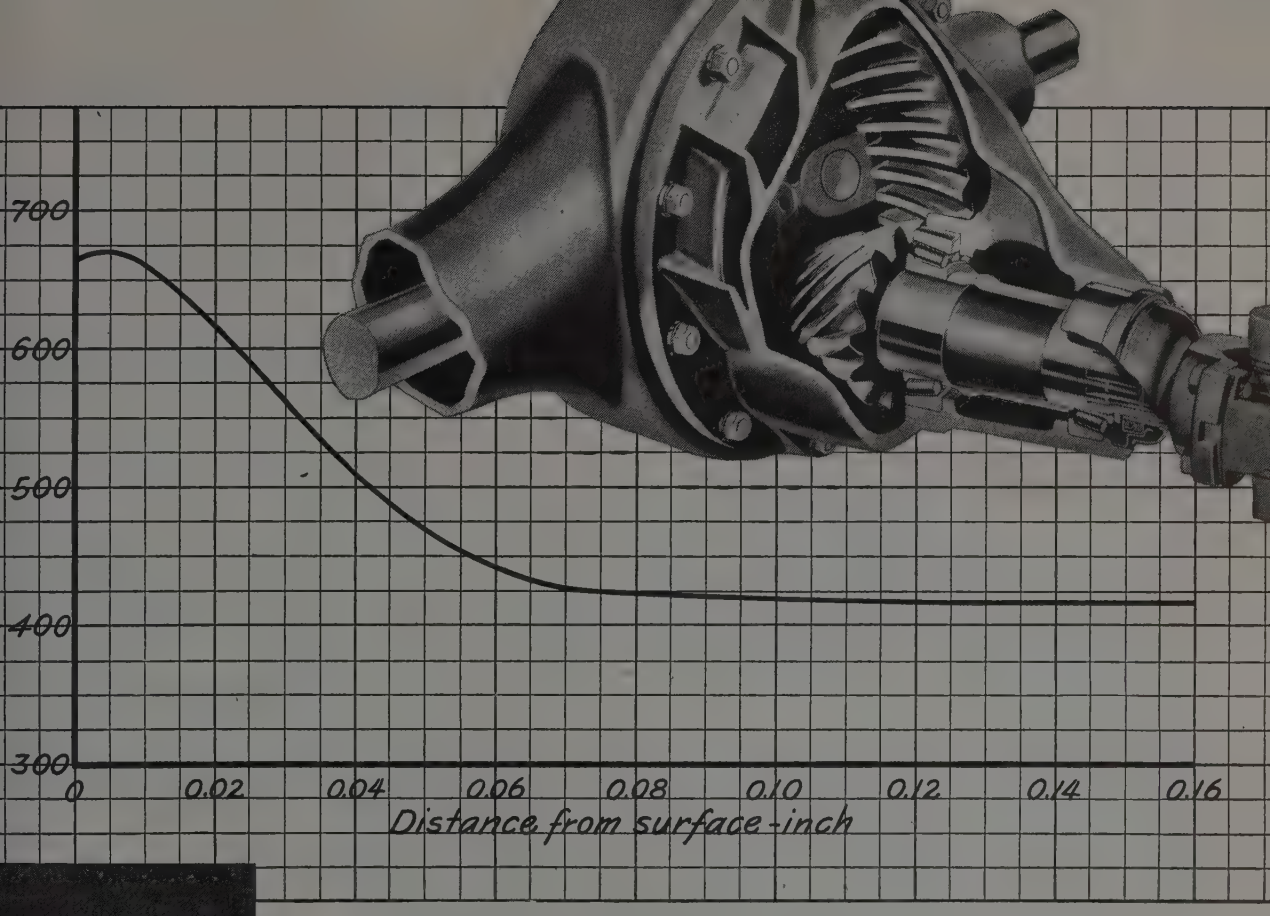
British Powder Metallurgy Symposium Published

Available from Iron and Steel Institute of Great Britain, London, is special report No. 38, a Symposium on Powder Metallurgy. Divided into six sections, the first of which is an introduction to powder metallurgy in Great Britain, the symposium has within its covers a total of 28 papers.

Sections of the 208-page publication (after the introduction) are as follows: Preparation, properties and testing of metal powders; magnetic powders and products; hard-metal carbides; porous metal components; and the manufacture and properties of sintered components. Various aspects of these subjects are covered in the papers submitted by outstanding technical authorities in the field of powder metallurgy.

Slide Film on Infrared Lamps Made Available

Informative material on how manufacturers may use infrared lamps for heating, baking and drying processes is being distributed to electric utility companies by General Electric Co. Lamp Department. Included with the material is a 25-min sound slide film in color entitled "Infrared Lamps for Better Production" which makes clear the different kinds of infrared radiant energy which may be applied to various processes throughout industry.



micrograph (100x) and hard-penetration graph of Chromium-dium A 6120 steel, with a light (0.80–0.85% carbon) in outer inch.

BONDED FOR LONGER LIFE

The secret of the outstanding strength of carburized parts made of Chromium-Vanadium A 6120 steel is revealed in the above chart. The noteworthy feature is the even slope of the curve, representing the *gradual* decrease in carbon penetration.

There is no sharp dividing line between the case and core—no shell to be shattered by shock or repeated stress. On the contrary, Chromium-Vanadium A 6120 carburizing steel is notable for the firm, well-integrated bond which results from the characteristically uniform decrease in hardness penetration from case to core.

The accompanying photomicrograph is further convincing proof of this exceptional integration or bonding.

For such vital parts as gears, cams, splines, shafts and bearings, the use of A 6120 Chromium-Vanadium carburizing steel assures superior performance and longer service life, in addition to over-all economy.

Our metallurgists will be glad to work with you on your carburizing problems.

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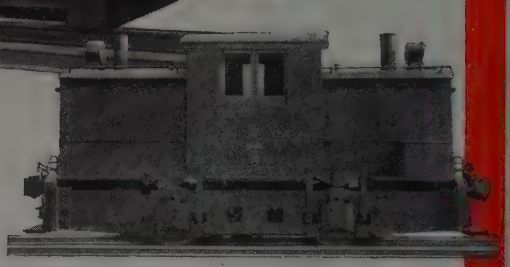

Porter's leadership in the building of Diesel-Electric switchers for steel plants is the natural result of its location in the heart of the steel industry. Builders of steam locomotives since 1866, Porter was first in the field with a steel mill locomotive powered by an internal-combustion engine and electric-transmission. Long years of on-the-job experience with locomotive operation in and about the steel mills of the Pittsburgh District has enabled Porter Engineers to develop highly efficient and economical Diesel-Electric units for heavy industry.

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MECHANICAL HANDLING FLEXIBILITY

Assures Smooth Flow of Gear Blanks

MECHANICAL methods used for handling gear blanks during machining and other operations at Westinghouse Electric Corp.'s Gearing Division, can best be illustrated by following a typical blank as used for locomotive gearing from the time it is picked up in the storage yard until it is ready for shipment. According to O. P. Adams of Westinghouse Electric Corp., gears produced in quantity at the company's gearing division require maximum flexibility of the material handling facilities to assure a smooth flow through the plant. The 27-in. diameter blank with a 6-in. face that is used in the accompanying illustrations is typical work of this class.

Gear blanks of this size are made from a rolled steel section and are received from the mills in carload lots. They are stored in an upright position to facilitate handling, and in conveniently located open storage areas. Four to six blanks loaded on the forked elevator platform of a power truck are delivered to a production storage area near a battery of vertical lathes. The prongs of the forked platform are adjustable for ready handling of blanks of different diameters.

Chucking blanks in the vertical lathes preparatory to turning, facing and boring is facilitated by jib cranes with electric hoists. A chain sling with hooks passed through the holes in the web of the gear blank makes picking up and lowering a simple, yet safe operation.

Next manufacturing step is hobbing. The machined gear blanks are moved from the vertical lathes to the hobbers by an overhead traveling crane. After the teeth have been cut the gear is removed from the hobber as shown in Fig. 1, and placed in a nearby area preparatory to heat treating.

Transfer to the heat treating department is accomplished with an overhead traveling crane. Four to six gears are carried on each trip by simply inserting a steel shaft or bar through the hubs and looping the chain sling over each end of this shaft. The gears are placed adjacent to the heat-treating furnaces where they are picked up one at a time by a triad of special hooks slung from an electric hoist on a jib crane and placed horizontally on the furnace guide rails.

When the gear is ready for quenching, an overhead traveling crane with a set of hooks like those used for furnace loading operations picks it up and carries it to the quench tank. These operations are shown in Fig. 2.

Plant layout necessitates transferring the gears to an adjoining production aisle for the finish grinding operation. The overhead traveling crane carries four to six gears simultaneously to the transfer car. Once on this car, a power truck pushes them to the next aisle where they are again picked up en masse by an overhead traveling crane and deposited near a battery of grinding machines.

A jib crane with a hand-operated chain hoist and a single hook that holds the gear in a vertical position is used to set up the bore grinder. This crane will service several machines. Following the operation the gears are moved to the cleaning and greasing area. From here they are loaded onto another transfer car and moved to the shipping floor. A jib crane with electric hoist lifts the gear from the floor and lowers it into a crate. When the crate has been sealed, a power truck with a forked elevator platform picks up the crated gear and transfers it to a car or truck for shipment.

As the size of the gear changes, variations in the procedures described are employed, but regardless, the methods for handling are basic if a smooth and efficient flow of material through the plant is to result.

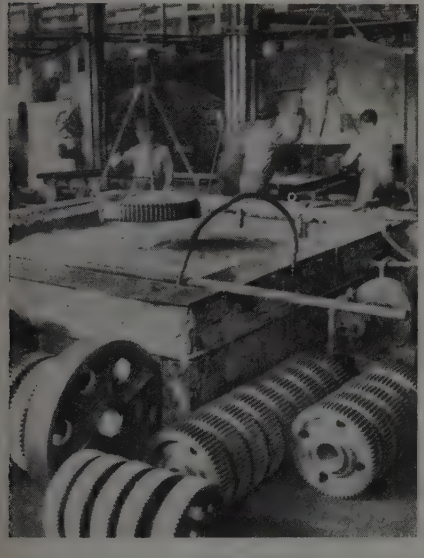
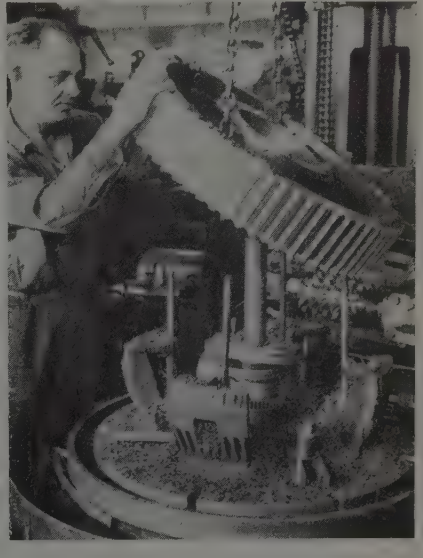


Fig. 1 (left)—Overhead traveling crane used to remove gear from hobbing machine after cutting operation. Holes in web allow ready use of chain sling arrangement simplifying handling and minimizing accident hazard

Fig. 2 (right) Three special hooks are used to pick up heated gear at mouth of furnace for movement to quenching tank. Jig crane with electric hoist uses similar set of hooks to load heat treating furnace



ASME Discussion Covers Gas Turbine Alloy Forging

Investigations into the forging characteristics of high temperature materials, made in connection with production of parts for the aircraft gas turbine, may be expected to be of measurable value in the manufacture of highly stressed rotating parts in general, stated L. B. Fonda of General Electric Co.'s Thomson Laboratory, Lynn, Mass. Speaking before a recent meeting of the American Society of Mechanical Engineers, he related that on the gas turbine forgings, it was found that the most important consideration for securing good turbine wheels was high ductility.

With good ductility, minor defects do not materially affect the bursting speed of the wheels, he continued. Adequate control over grain flow within the forging has gone the farthest in obtaining high overall ductility in the plane of maximum stress.

It was found that the use of proper combination of inspection procedures also has been an important factor, he stated.

Inert Arc Welding

(*Continued from Page* 74)

with the high-frequency stabilizing current supply as a built-in feature. In general, these transformers are similar to standard welding transformers, except that they contain high-frequency current-generating units. The current developed by these generators is superimposed on the standard welding current.

Advantages of alternating current with superimposed high-frequency current over direct current with reverse polarity connections are as follows: 1. Starting is easier; 2. a longer arc length can be maintained, thus making the process less critical; 3. no flux is needed on any weldable metal, providing argon is used; 4. less electrode heating; 5. less pickup of weld metal on tungsten electrode and therefore cleaner weld deposit; 6. less current required for a given weld; 7. electrode life is increased as much as 100 per cent; 8. position welds can be more easily made.

The advantages of high-frequency stabilized alternating current over direct current, straight polarity, are not so numerous. However, the alternating-current welding does not produce easier starting so that less metal is picked up on the tungsten electrode. Main advantage of alternating current over straight polarity direct current is that the latter cannot, at the present time, be used to weld aluminum or magnesium without flux.

Other materials on which alternating current has been found to give suitable welding characteristics are stainless steel, high-carbon steel, beryllium copper, bronze, Monel, silver and brass, with the exception of some leaded varieties. Such alternating-current welding employs that type of current that is available from standard hand or machine-welding transformers. This means an open-circuit voltage of from 55 to 100 v.

In addition to the use of welding transformers with superimposed high-frequency built-in, it is quite practical to use regular welding transformers of the unstabilized variety. These may be adapted for high-frequency operations by the addition of a high-frequency generator in the current leads. A type of high-frequency unit found quite satisfactory for the purpose is that which is ordinarily supplied for quick or hot start in manual arc welding.

Accompanying table listing the approximate current-carrying capacities of the standard size electrodes, summarizes the welding condition for various types of current.

Production Applications: Use of this welding method on rolled as well as cast sections of magnesium influenced the rapid growth of the use of this material, particularly for aircraft during the war. Such items as fuel tanks, aircraft seats, and aircraft structural assemblies were fabricated from tubing and sheet. Fig. 7 shows the welding of an end frame of an aircraft seat. Metal used here is magnesium FS-1. Some other types of magnesium alloys successfully welded by Heliarc process are C, G, H, J-1 and M.

SHIPPED IN ONE PIECE: Intended for use in a continuous strip pickle line of a Brazilian steel mill, two rubber-lined tanks, believed to be the longest ever shipped in one piece, were recently lined, crated and dispatched by Manhattan Rubber Division of Raybestos-Manhattan Inc., Passaic, N. J. Each tank measured 62 x 7 x 6 ft, the two together requiring three flat cars to carry the 44-ton load. Rubber in these tanks is specially compounded to withstand the corrosive attack of acid and high temperatures

Large savings can be effected through the repair of magnesium castings by this type of welding. Furnace preheating ordinarily varies from 2 hours at 725° F, for the most critical work, to shorter periods at 300° to 400° F for simple sections or less critical parts. Average argon consumption for this type of work is about 2½ liters per minute, or 5½ cu ft per hour of torch operation. The approximate rate of metal deposition is 0.4 lb or 7 cu in. per welding hour. These rates are for the relatively slow reverse polarity, direct current method of welding. The alternating current method, now gaining in favor, allows deposition rates of from 2 to 4 times as great as before in the heavier sections. This gain is made at little or no increase in gas cost, but results from added heat input to the work and reduced heating of the electrode when using alternating current.

On alumium, inert gas-shielded arc welding is finding its greatest application as an industrial tool. In some cases, it is the only possible means of fabrication, while in others, its economy and convenience make it almost indispensable. Outstanding feature of the process as applied to aluminum is the absence of flux and elimination of cleaning, corrosion, and porosity problems.

Nonheat-treatable alloys that are welded commercially by this process are 2S, 3S, 52S; of the heat-treatable alloys, 24S, 53S, and 61S are successfully welded. For lap welding without weld metal, the parts must be held in close contact; otherwise, it is necessary to add weld metals.

Recent application of Heliarc welding without flux was performed at a welding speed of 16 in. per min. The material is 61ST in an alloy previously considered difficult to weld. Reference in this case is to the production of aluminum beer barrels. These are in the familiar 15½-gal size, which are constructed of two drawn halves joined by a girth seam. In Fig. 1 the fitting is being welded in one end of the barrel.

The next step is to join the two half shells in a welding jig, Fig. 5. Two small rollers which precede the welding torch have the important function of keeping the two edges of the seam exactly level. This is the operation mentioned previously which is carried on at the rate of 16 in. per min.

Probably the largest scale Heliarc welding operations to date on aluminum have been in railway tank-car construction. These have three 40-ft longitudinal seams between ½ and ⅝-in. thick plates. The circumferential seams on the ends join these to ⅝-in. thick dished heads. Joint between the side plates and the dome involves a lap weld between ½ and 1-in. thick plates. All of these

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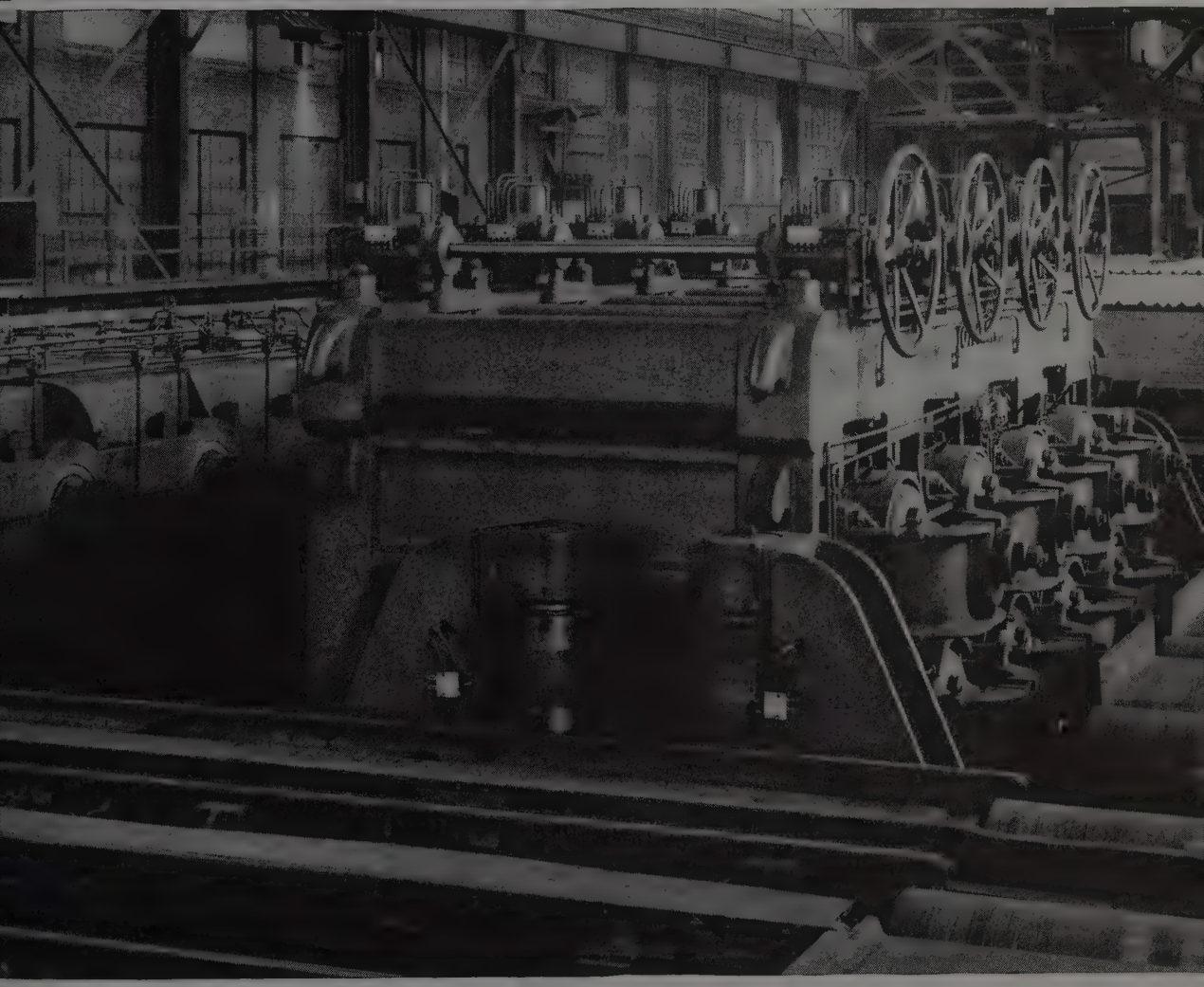
A section of roller table is mounted on one side of straightener to be shifted into the roller table line when straightener is not in use.



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welds, with the exception of the latter are made without any preheating.

Stainless Steel: At present this welding process is being employed in the fabrication of stainless steel types 302, 304, 316, 327, 347 and 410. This material is used in manufacturing milk processing equipment, food preparation equipment, chemical storage and reaction vessels, oil refinery equipment, barrels, aircraft exhaust manifolds, household and industrial kitchen ware, sinks, and stoves.

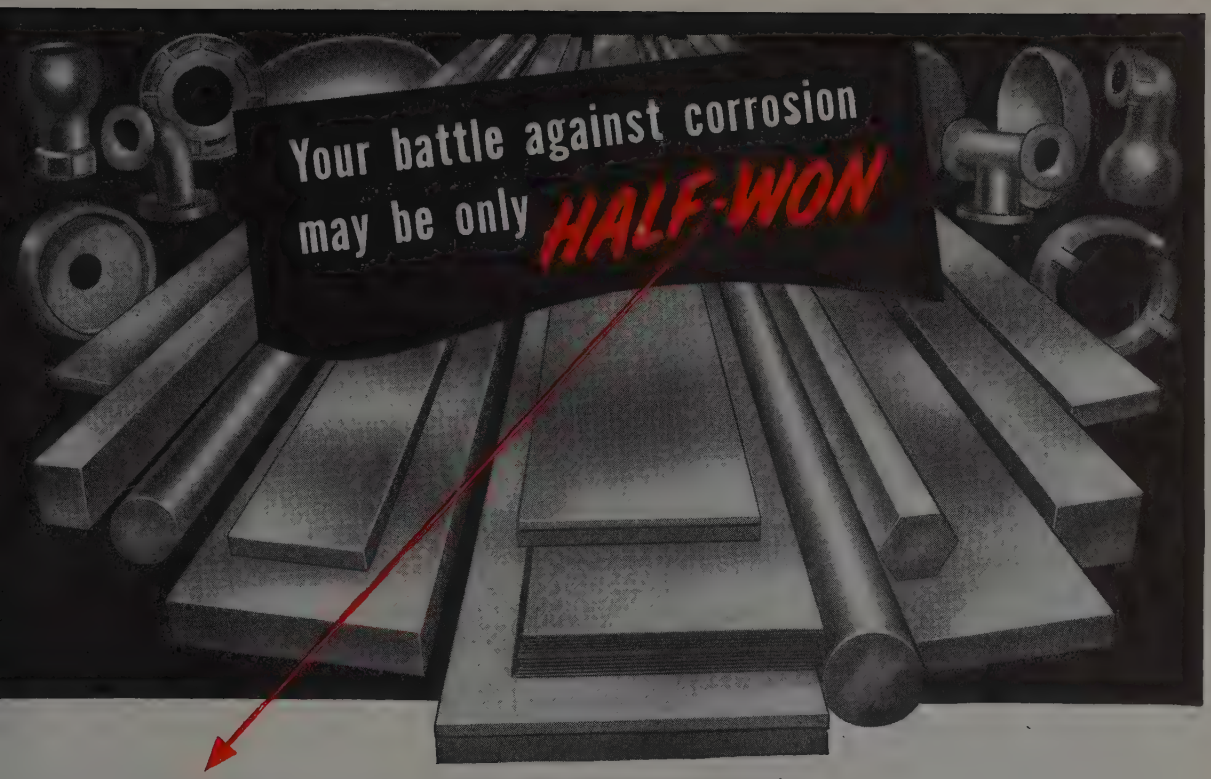
Important advantage reported by manufacturers is the saving in cleaning, grinding, and repairing costs. Less obvious, but often more important, is the high quality of the weld in such aspects as no carbon increase, low heat effect and carbide precipitation, and extremely low nonmetallic inclusions and porosity. Recent tests of weld metal for ½-in. thick plates indicated no measurable loss of either nickel or chromium during welding.

Although there have been many outstanding applications of this process on stainless steel, two reasons have led to the belief that the adaptation of the process has been somewhat slow as compared to aluminum. In the first place there are other methods of fusion welding stainless steel which are quite satisfactory. The difficulty of obtaining stainless steel materials has also had an influence. It is believed that when stock becomes more adequate, a great expansion in the use of these high strength, corrosion-resistant materials will take place.

An early use of the process in the fabrication of stainless steel was the construction of spouts for cream separators. Steps used in the fabrication of these units are illustrated in Fig. 2. After cutting the two halves to size in the power shear, they were heated with an oxy-acetylene blowpipe and then shaped over a mandrel. They were then assembled, tacked, and welded together. The parts were hand-finished to a high polish on power-grinding wheels.

Probably one of the most critical joining problems in the metalworking industry is encountered in the fabrication of vacuum-jacketed vessels used in the storage and transportation of liquefied gases such as oxygen and nitrogen. Since the efficiency of these vessels depends upon maintaining an extremely high vacuum between the inner and outer shells, leakage rate of the joints is extremely important.

Inasmuch as ordinary pressure tests are not adequate to determine the presence of leakage, extremely accurate laboratory tests, sometimes requiring days or weeks to complete, must be made. In the past, the most satisfactory material for construction was copper. Before the



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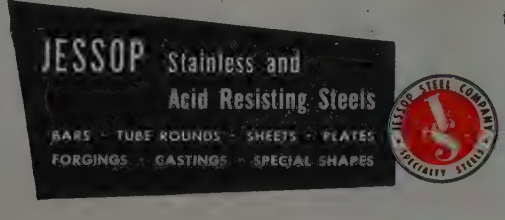

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introduction of Heliarc welding, a considerable amount of work was done, in attempting to fabricate these vessels from thinner gages of stainless steel. This was highly desirable as a stronger and lighter-weight vessel could be expected if a suitable joint could be made. Despite all the efforts expended, the highest quality of joints that could be obtained by any method was hopelessly inadequate on a porosity basis. Part of the difficulty was due to the sensitivity of other methods of welding to variations in the composition of the stainless steel. This problem has now been solved by the Heliarc process.

An interesting variation of the process that appears to have great utility is now being developed. This is the so-called poke welding process. With a modified hand welding torch and a weld timer, spot welds can be produced between lapped stainless steel sheets or between this material and the same or greater thickness of carbon steel. Aluminum sheets may also be joined in the same way.

Although the major use of the process has been on the three materials discussed previously, it is by no means limited in its application to these materials. Important use of the process has been made on difficult manufacturing operations involving pure silver, Monel, Everdur, Inconel, and various copper and nickel alloys.

A use which is now gaining rapidly in popularity is the fabrication of large chemical storage tanks made of Everdur. In Fig. 6 the welding procedure is shown being used on 18 ft long, 8-ft diameter Everdur tanks.

The shell thickness is 3/16-in. and the heads are ¼-in. thick. Attached to one end of the tank is a 3-ft steel skirt. Joint between the tank and the skirt is also made with an Everdur rod and the Heliarc process. This type of welding is carried on by using 3/16-in. and ¼-in. tungsten electrodes with alternating current. In this case, two welders work simultaneously on vessels, each applying one head on the inside and outside with welding rods. A back-up bar is used on the shell to head seam and the joint is completed with welding rod in two passes from the outside.

From a presentation at annual meeting, American Welding Society, Atlantic City, N. J., Nov., 1946.

—o—

Five new and 32 revisions of former specifications of aeronautical material specifications are being published as of July 1, 1947, by Society of Automotive Engineers. They may be obtained from SAE headquarters, 29 West 39th street, New York 18.

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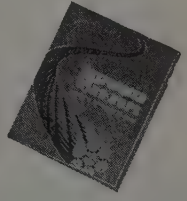

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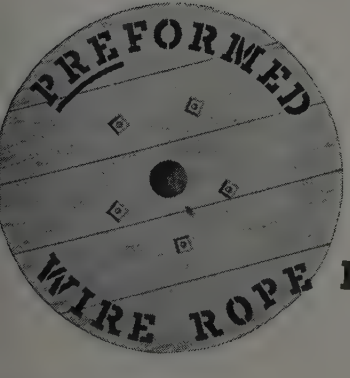

HANDLES EASIER - LASTS LONGER

Brittle Lacquer Technique

(*Continued from Page* 71)

of 4 or 5°F due to frictional effects during spin testing, which is not true in the case of the calibration strip.

In addition, the load on the impeller is dynamic, while that on the calibration strip is static. Due to the nature of the coatings used, it was estimated that the errors involved would be of the order of 10 per cent, which was considered satisfactory for these particular tests. However, if greater accuracy is required, the calibration can be performed by spin-testing a simple flat-sided disk for which the centrifugal stresses can be calculated accurately.

The impellers were spin-tested at increments of speed of 15,000, 18,000, 19,500, 21,000 and 25,200 rpm. In each case, they were brought up to speed, held at speed for only 1 or 2 sec, and then stopped as quickly as possible. The coatings were then examined to see if any patterns had formed. Testing was then resumed at the next highest speed.

25,200 Rpm Not Exceeded

In all cases the stress patterns were completed at 21,000 rpm, and no speeds above 25,200 rpm were attempted. The table summarizes the average results of this group of tests. For comparison purposes, all the stress values have been corrected to the same speed, namely 30,000 rpm. In addition, Figs. 1, 2, 3, 4 and 6 illustrate manner in which the stress patterns appeared in the brittle coatings at the various speeds. These photographs are marked to show the sections of the impeller involved and the test speed. The pictures were taken using a special staining technique to make the cracks more visible.

It is interesting to note that the experimentally determined values of the stress at the impeller bore on both faces checks fairly well with the calculated values in spite of the afore-mentioned inaccuracies. This is due to the fact that the uniform cross-section of the impeller near the bore simplifies the calculations and improves their accuracy. The calculation theory also indicates that the stress near the vanes should be considerably less than that at the bore, because the material near the bore carries the load of all the other material nearer to the external diameter of the wheel.

However, the calculation theory neglects the effects of stress concentration. Actually, the accompanying table shows that the stress patterns between the vanes form at the lowest speed, and that these sections are actually the most highly stressed sections of the entire impeller. High stresses are caused by the stress concentration effects of the sharp

her edges at the discharge side of vanes. In other words, these tests indicated that properly contouring and using sharp edges would tremendously increase the over-all strength of the eller.

These facts were later substantiated experiment. Some of the impellers e radiused at the vane discharge es until brittle lacquer tests indicat- that the vane stresses had been re- ed to approximately the same value the bore stresses. Spin tests were n made to destruction on both ra- sed and unradiused impellers. It was nd that the bursting speed of the perly redesigned impellers was about per cent above that of the original ellers.

These tests prove conclusively the ue of applying experimental tech- ues to aid in the solution of difficult lytical problems. The brittle lacquer hod appears to be well suited to parts de from forged aluminum alloys, and be used to improve and refine the de- n of such parts. It is obvious that lytical calculations can be relied upon certain regions of the impellers, par- ularly those where the cross-section is ly flat or uniform.

However, the effects of stress raisers not be calculated accurately, and the gnitude of these effects may be many es greater than indicated by the cal- ations. In fact, they may be so great to invite disaster due to operating ures. For safe operation these effects st be evaluated correctly by experi- ntal methods, and where the stresses excessive, they must be reduced by propriate redesign.

andard Electric Drawing ymbols Published by ASA

Drawing symbols used in wide sectors the electrical field are included in the master standard recently completed now ready for distribution by Amer- n Standards Association, New York. nsored by American Institute of Elec- al Engineers and American Society Mechanical Engineers, it is known as erican standard basic graphical sym- s for electric apparatus, Z32.12-1947, contains 152 basic symbols for elec- al drawings, which, in combinations, be used to describe an almost endless iety of devices on electrical apparatus. Some classes treated in the new stand- include those covering the elec- nic, thermionic and cold cathode fields photoemissive tubes, transformers, uctors and capacitors. Actually, sym- s contained in the standard are not , having been available previously separate standards.

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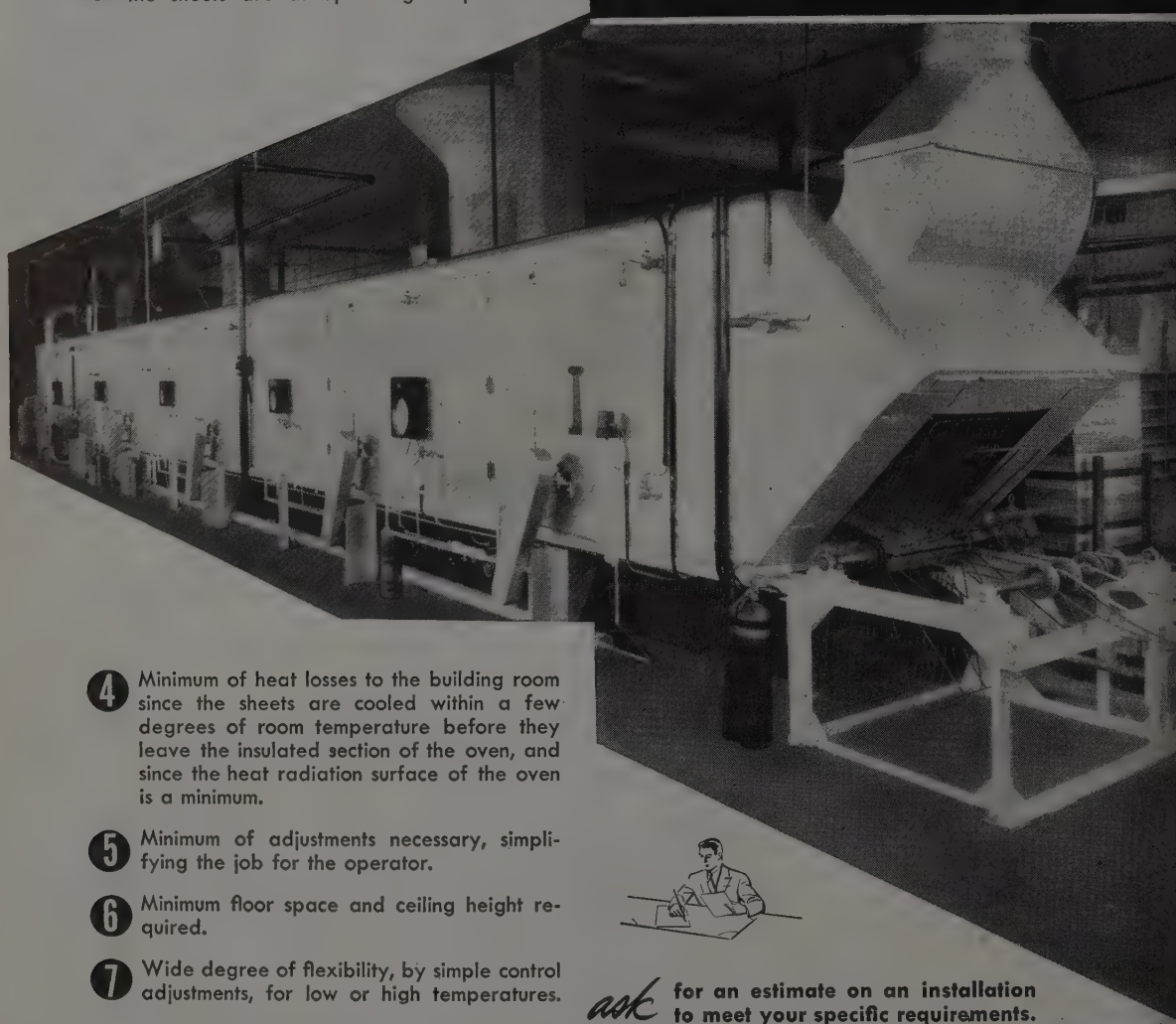

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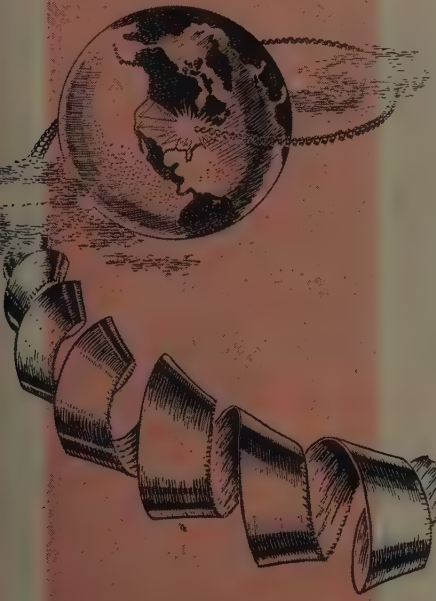
MACHINE TOOL SECTION

Published in conjunction with the Fourth Machine Tool Show of the National Machine Tool Builders Association in the plant (Dodge-Chicago) of Tucker Corp., Chicago, September 17-26, 1947

SEPTEMBER 1, 1947



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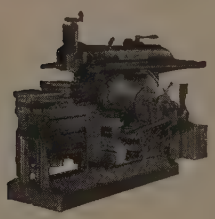

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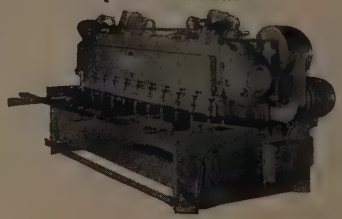

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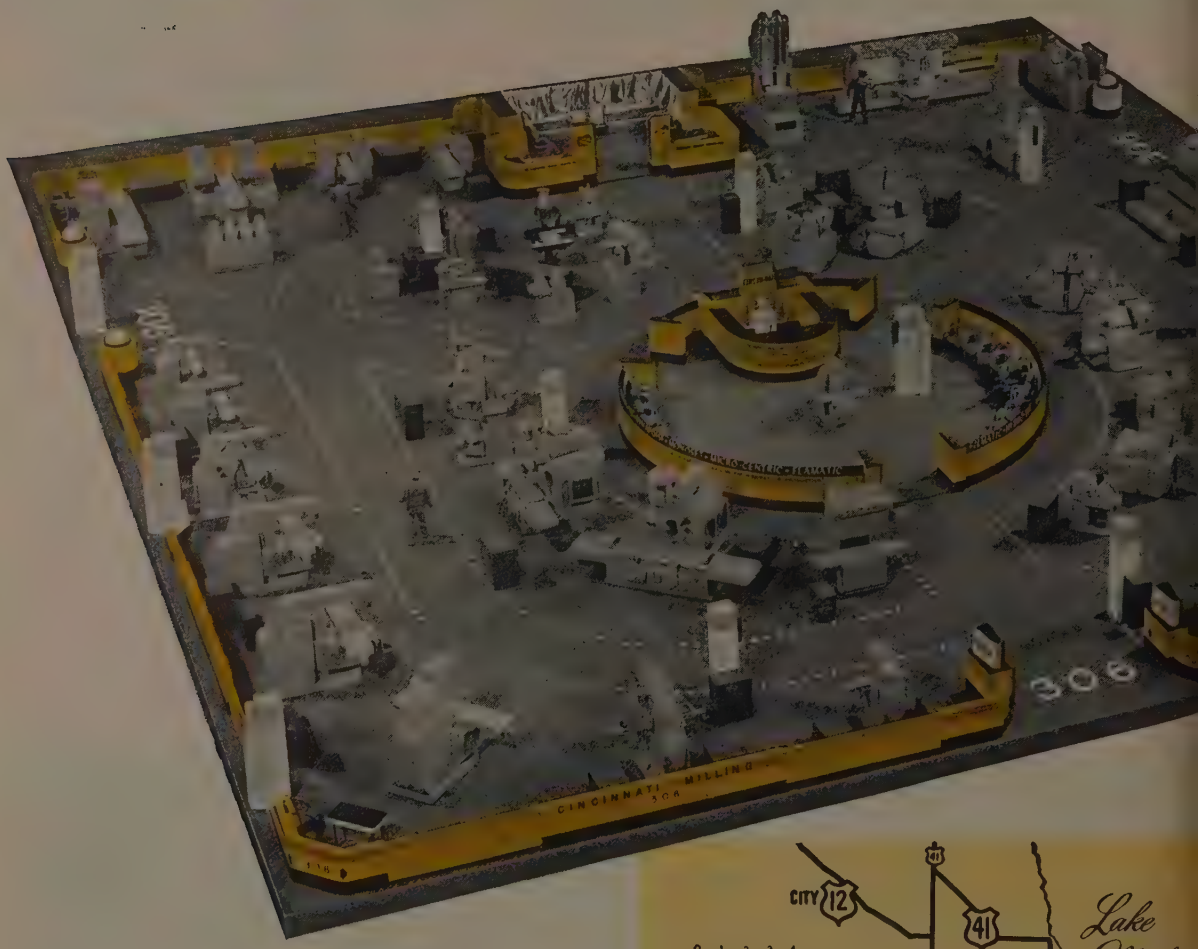

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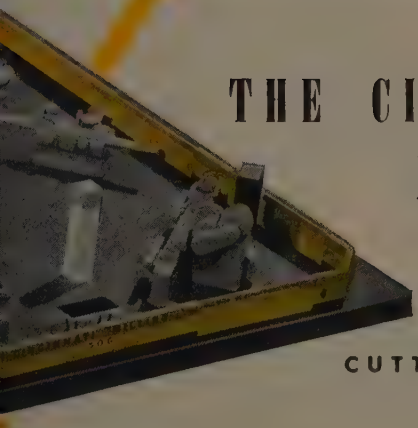


THE CINCINNATI MILLING MACHINE CO.

MILLING MACHINES

BROACHING MACHINES

CUTTER SHARPENING MACHINES

•

CINCINNATI GRINDERS INCORPORATED

CENTER TYPE GRINDING MACHINES • CENTERLESS GRINDING MACHINES

CENTERLESS LAPPING MACHINES

In display area 306, center of the world's biggest machine tool show, you will see over 40 new machine tools in action . . . CINCINNATI Milling, Grinding, Broaching, Lapping, Cutter Sharpening, and Die-Sinking Machines. The complete CINCINNATI display is modeled at the left. While you're there, stop for a friendly visit with our field engineers in the central or international lounge areas. Remember the date . . . September 17 to 26, and the address: 306, center of the show.

CINCINNATI

DOWN

go turning costs*

at MONARCH Booth 208

SEE THESE NEW PROFIT-MAKERS TAKE THE INFLATION OUT OF HIGH LABOR RATES

1—10″ x 20″ Model EE Sensitive Precision Toolmaker's Lathe—just what the name implies and fast, too.

2—10″ x 20″ Model EE Sensitive Precision Toolmaker's Lathe, Metric Design—a complete range of built-in metric feeds and speeds.

3—10″ High-speed Manufacturing Lathe—turning, facing and boring small work at speeds up to 5000 rpm.

4—10″ High-speed Manufacturing Lathe—more high-speed production, including drilling at 18,000 rpm.

5—The Speedi-Matic—electronically controlled; the world's fastest hand screw machine.

6—10″ High-speed Manufacturing Lathe with "AIR-TRACER"—turning an unusual irregular contour at super high speed.

7—12″ Mold-Maker's Toolroom Lathe—an exclusive method for rapidly and accurately cutting constantly increasing or decreasing leads.

8—12″ x 30″ Model C Toolmaker's Lathe—form cutter relieving.

9—12″ x 30″ Model C Engine Lathe—simultaneous turning of three angular faces.

10—13″ Sensitive Precision Toolmaker's Lathe—electronically controlled; a completely new conception of toolmaker's lathe design.

11—14″ x 30″ Model C Engine Lathe—extra versatile; streamlined in both appearance and operation.

12—14″ x 54″ Model C Toolmaker's Lathe—for steep angles and short or long tapers.

13—16″ x 54″ Model C Toolmaker's Lathe with Keller controls—irregular contour facing of both increasing and decreasing contours.

14—18″ x 48″ Model C Toolmaker's Lathe—surface cutting speed automatically maintained on facing operations.

15—18″ x 96″ Engine Lathe with Keller controls—boring and turning contours simultaneously.

16—Shapemaster with Keller controls—turning a tapered square.

17—Shapemaster with forming device—the lathe that engraves; first showing of the most remarkable development in turning history.

18—20″ x 48″ Model C Engine Lathe with "AIR-TRACER"—turning constantly changing contours, tapers and diameters.

19—20″ x 48″ Model C Toolmaker's Lathe with "AIR-TRACER"—one cutting tool doing the work of many on multiple-diameter, high-production parts.

20—Magna-Matic—maximum output on work having multiple diameters and necks.

21—20″ x 72″ Model M Engine Lathe with automatic sizing controls—electronics applied to the turning of long, multiple-diameter shafts having great diameter variation.

22—25″ x 48″ Model N Engine Lathe—a heavy-duty machine with all the refinements required for high finish and close accuracy.

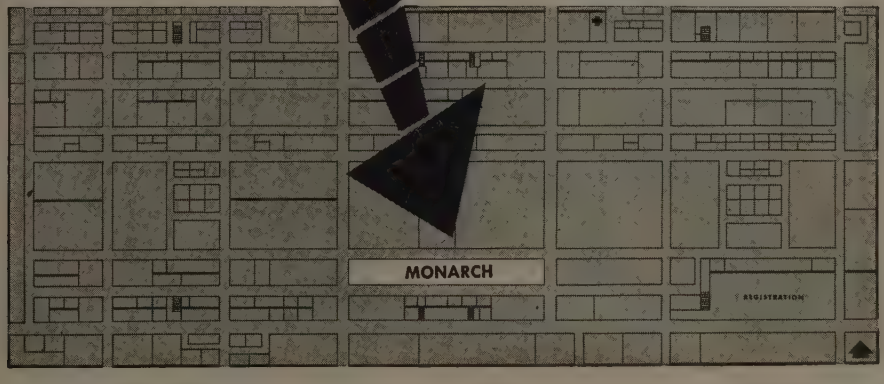
23—32″ x 84″ Model NN Engine Lathe with 50 hp drive—from this super high-speed 50 hp machine the chips roll as they never rolled before.

*MONARCH IS PROUD TO PRESENT
THE LARGEST DISPLAY OF NEW
METAL-TURNING EQUIPMENT
EVER ASSEMBLED IN ONE EXHIBIT

AT THE

Machine Tool Show

CHICAGO, SEPT. 17-26



–32″ x 84″ Model NN Engine Lathe with Keller controls—
ndle rigidity under heavy cuts without tail center support.

–13″ x 18″ Mona-Matic with cam bar and tool relief—high-
ed, multiple tool, front and rear carriage turning and necking.

–13″ x 30″ Mona-Matic with "AIR-TRACER"—a fully auto-
tic machine with magazine loading.

–Uni-Matic—two machines in one; a versatile producer of
cking work in quantity.

–Uni-Matic with "AIR-TRACER"—a continuous, single tool
on a chamfer, multiple diameters, tapers, radii and shoulders.

–Uni-Matic with hydraulically-operated table—a novel
thod of machining a difficult counterbore.

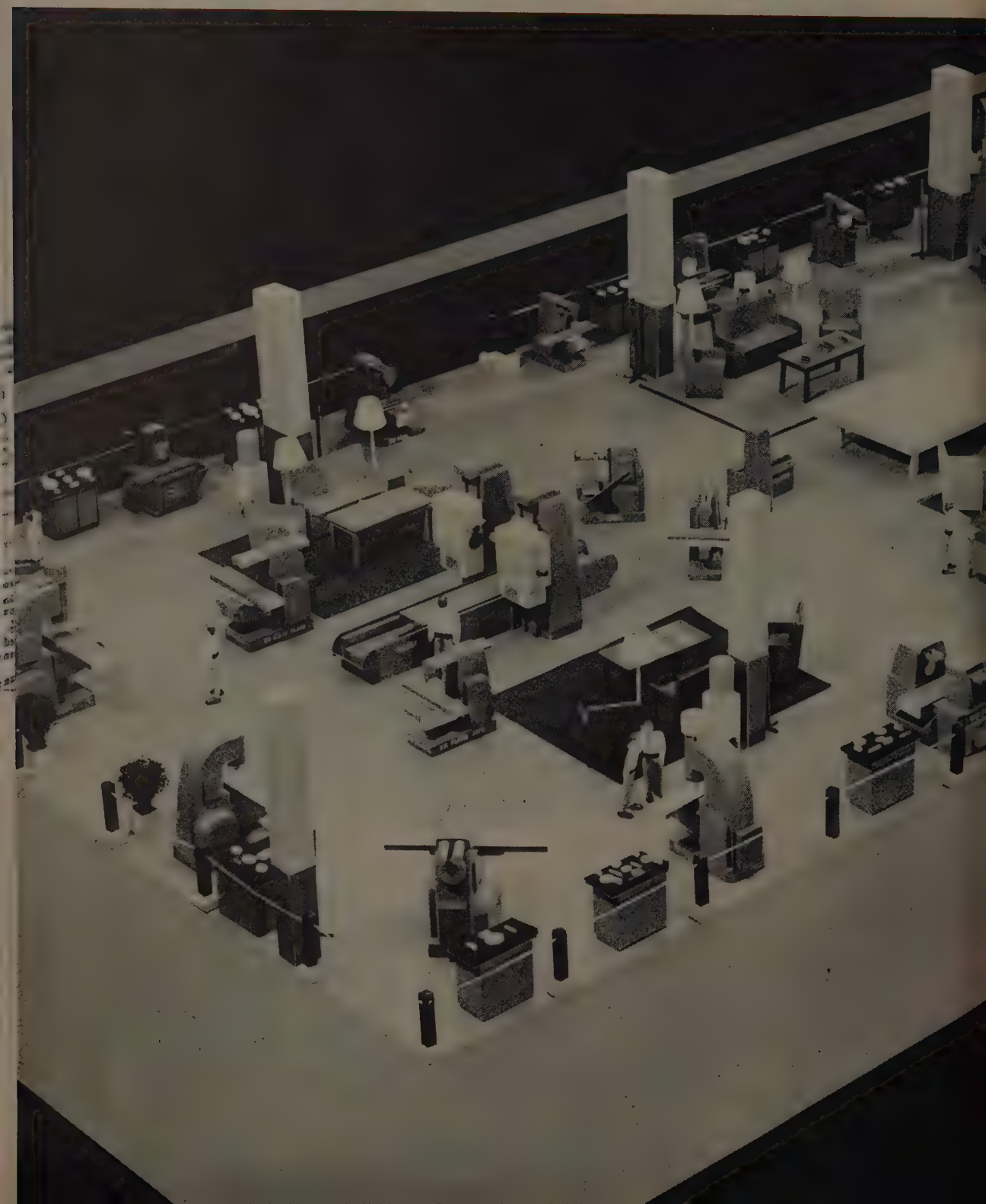
–13″ x 30″ Mona-Matic with "AIR-TRACER"—auto-
tically turning or boring continuously increasing or decreasing
tours with a single cutting tool.

ACCURACY · ECONOMY · LONG LIFE

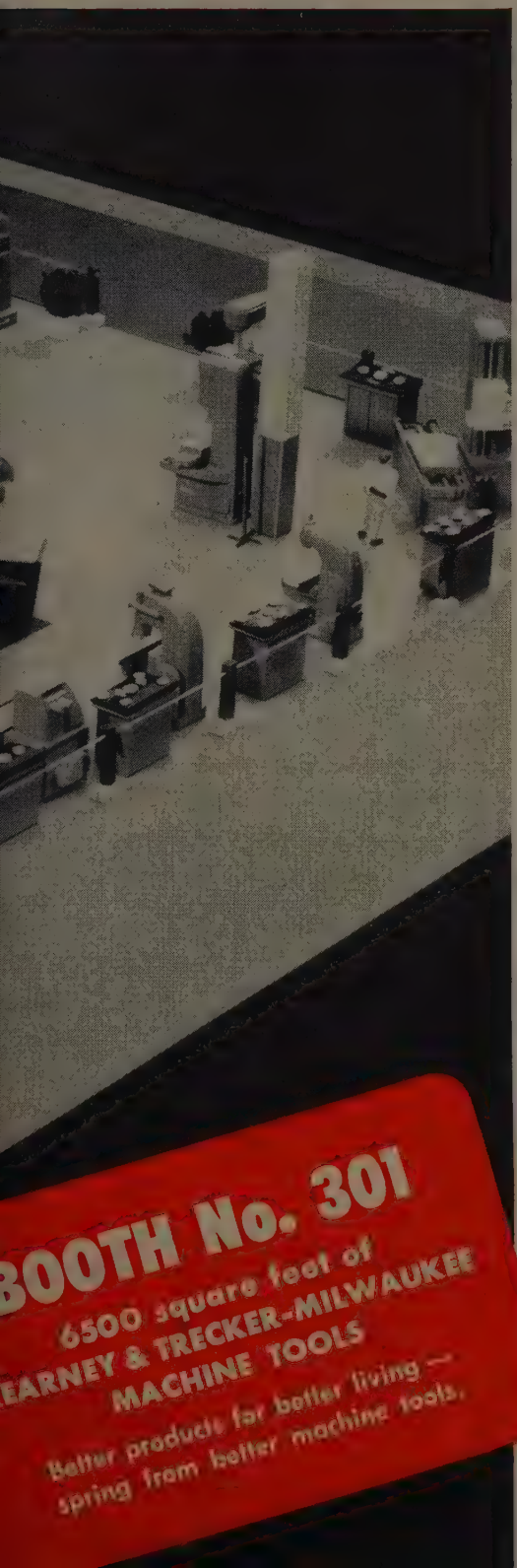
Monarch
TURNING MACHINES

HE MONARCH MACHINE TOOL CO., Sidney, Ohio

SEPT. 17--these models



COME TO LIFE!



KEARNEY & TRECKER demonstrates 28 Great NEW machines and developments at MACHINE TOOL SHOW Chicago . . Sept. 17-26

SEE World's Most Advanced Milling Machine —
Standout of the Kearney & Trecker exhibit — the Model 5D Rotary Head Milling Machine. It's a bed-type with the most versatile application possibilities ever incorporated in a milling machine. It's the miracle machine you'll have to see to believe!

SEE Entirely New Concept in Bed-Type Designs —
Machines that mean broader range, greater adaptability at lower operating costs to you. Machines that use all modern cutting tools to maximum efficiency.

SEE Automatic Cycle Control —
on standard knee-type machines. A feature that gives you high-production capacity on long-run lots and the simplest possible control on single pieces or short-runs. Reduces operator fatigue to barest minimum.

SEE Three Dimensional Accuracy —
to standards of performance heretofore only accredited to expensive foreign equipment. You be the judge — see them in operation — Horizontal and Vertical types — America's finest precision boring machines.

SEE Carbide Milling at Its Best —
on the most powerful knee-type milling machines ever built! Specifically designed to get maximum efficiency from carbide cutters. See them mill tough steels and other metals at unprecedented rates.

SEE Simplified Milling Machines —
At long last — milling machines reduced to fundamental requirements for both foreign and domestic use. Modern design, plus economy of parts offers the highest dollar for dollar efficiency obtainable anywhere.

SEE Precision Machines for Milling and Boring —
Machines demonstrating multi-purpose use on single set-ups. See tool room precision results on every-day production work.

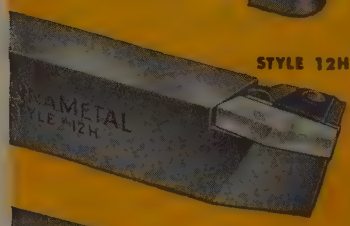
SEE Cutter Grinding to Ultra-Close Limits —
on a machine that's built to serve the most exacting requirements for carbides and other tool steels. Design gives special consideration to ease of setup for grinding any combination of rake and clearance angles on cutters up to 24" diameter. This machine is a *MUST* for your modern shop!

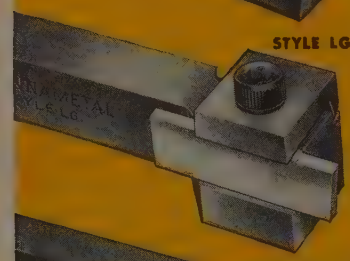
KEARNEY & TRECKER
CORPORATION
MILWAUKEE 14, WISCONSIN

KEARNEY & TRECKER MILWAUKEE MACHINE TOOLS

4713

KENNAMETAL Cutting Tools





The Kennametal tools shown above are representative of more than 60 standard styles—each designed to increase the productivity of machine tools, and reduce tooling costs, on specific metal-cutting jobs. See the complete line at—

KENNAMETAL DISPLAY
Machine Tool Show
Space 570

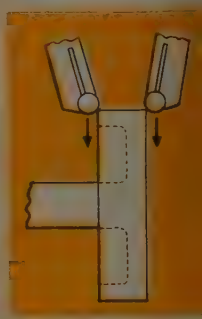
INCREASE THE PRODUCTIVE CAPACITY OF MACHINE TOOLS UP TO 500%

Hard, durable Kennametal cemented carbide cutting tools can turn out from t to five times as much as high speed steel tools on the same machine and in same time, because—

—they make possible machining at speeds 3 to 10 times as fast as with high speed steel tools,

—last many times as long before needing resharpened, thereby greatly reducing machine down-time, and

—cut tougher steels and hard, abrasive cast-iron; as well as steel in the hardened state, thus often saving annealing and rehardening operations.



It's good business to invest thousands of dollars in faster, more powerful machine tools. It's even better business to invest a few extra pennies in long-lived Kennametal cutting tools that enable the machine tool to produce more, in less time, at l cost. For example:

On the straddle-facing job sketched at the right, recently-developed Kenname "clamped-in solid round" tools (Style 6RS illustrated) have increased producti 20%, and are saving $10.00 per tool per day. This is not extraordinary performan —it is a typical example of the outstanding results obtained by using Kenname cemented carbide instead of other tool materials, and skillfully engineering to the job.

Kennametal tool engineers are at your service to help you get more work from your machine tools. Call upon them. ● Kennametal standard tools, that will handle up to 90% of all machining jobs, are listed and priced in Catalog 47. Write for a copy.

TRADE MARK REG. U. S. PAT. OFF.

KENNAMETAL *Inc.*
LATROBE, PA.,

MANUFACTURERS OF SUPERIOR CEMENTED CARBIDES AND CUTTING TOOLS THAT INCREASE PRODUCTION

AT THE

1947
MACHINE
TOOL
SHOW

CHICAGO
SEPT 17-26

GISHOLT

SPACE NO. 304

15,000 square feet of floor space

27 Operating Exhibits

See how these new and improved Gisholt Machines can help you speed production, increase accuracy, reduce fatigue—*cut costs!* See them all in operation at the Machine Tool Show.

4 Ram Type Turret Lathes
4 Saddle Type Turret Lathes
3 Automatic Turret Lathes
3 Hydraulic Automatic Lathes
2 Simplimatic Automatic Lathes
5 Superfinishing Machines
5 Balancing Machines

Important Supplementary Exhibits
—and a preview of a new Gisholt Turn Milling Machine

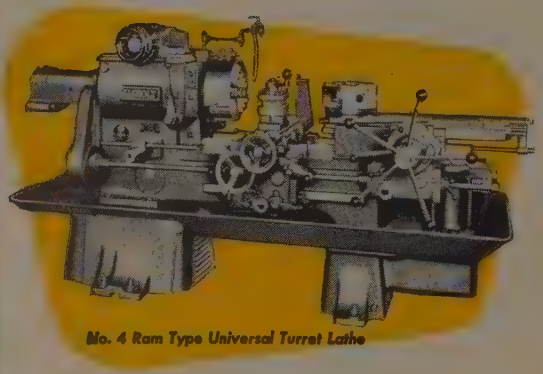
SEE THE FOLLOWING PAGES FOR FULL DETAILS

SEE GISHOLT AT THE MACHINE TOOL SHOW

See

TURRET LATHES

8 of the newest type Gisholt Turret Lathes at work on these jobs



No. 4 Ram Type Universal Turret Lathe

4 RAM TYPE MACHINES

① No. 3 Universal Ram Type Turret Lathe with collet chuck and octagon turret. *Machining brass distributor stem for air cylinder in two operations, with one rotation of the turret.*

② No. 4 Universal Ram Type Turret Lathe with hydraulically operated collet chuck and bar feed. *Machining your souvenir ash tray complete in one operation from 4½" aluminum bar stock.*

③ No. 4 Universal Ram Type Turret Lathe with speed selector and 12" air chuck. *Machining collet hood from steel forging.*

④ No. 5 Universal Ram Type Turret Lathe with speed selector; hydraulic-operated collet chuck. *Machining axle shaft.*

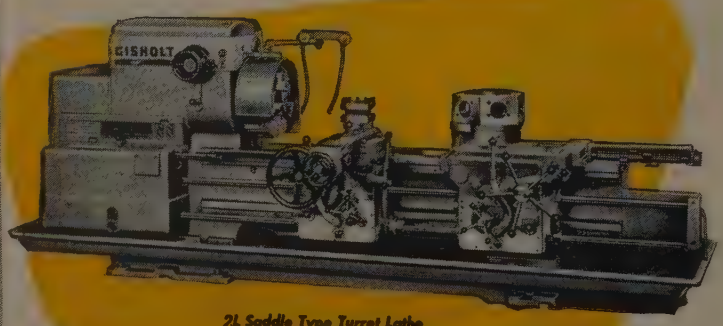
See

—How the Gisholt Speed Selector saves operator's time.

—How Gisholt's Finger-tip Spindle Control cuts time lag—saves effort.

—How 6-Way Power Rapid Traverse increases production.

—How Gisholt tooling permits maximum efficiency.



2L Saddle Type Turret Lathe

4 SADDLE TYPE MACHINES

① 1L Saddle Type Turret Lathe with 12" chuck and hollow hydraulic cylinder, permitting easy interchange between bar and chucking work. *Machining locomotive frame bolts, link pins and bushings.*

② 2L Saddle Type Turret Lathe with 18" 3-jaw air chuck and 16" cylinder. *Machining multiple disc clutch body from forging.*

③ 3L Saddle Type Turret Lathe with cross feeding turret, 3-jaw air chuck and 16" air cylinder. *Machining heavy tractor gear spider.*

④ 4L Saddle Type Turret Lathe with 12½" bore, cross feeding turret, and square turret on a compound slide (for steep angle turning). *Machining heavy forged steel bevel gear.*

LOOK AHEAD—KEEP AHEAD—WITH GISHOLT

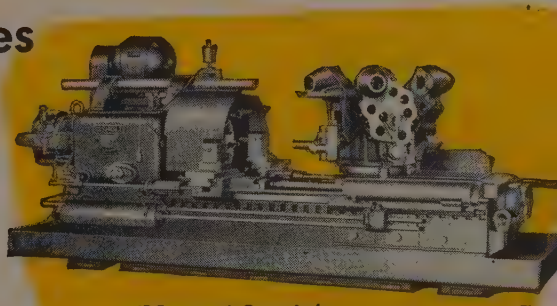
S E E GISHOLT AT THE 1947 MACHINE TOOL SHOW

e

AUTOMATIC LATHES

3 different jobs . . .

3 different types of machines



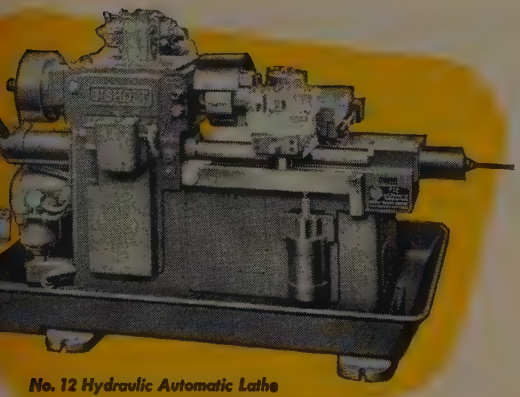
4F Fastermatic Turret Lathe

FASTERMATICS—AUTOMATIC TURRET LATHES

1F Fastermatic Turret Lathe, 12″ 3-jaw air chuck and 10″ cylinder. *Machining forged steel camshaft gear.*

2F Fastermatic Turret Lathe, 15″ 3-jaw air chuck and 12″ cylinder. *Machining multiple V-Belt sheave.*

4F Fastermatic Turret Lathe, 28″ 3-jaw air chuck and 18″ air cylinder. *Machining wheel hub casting.*



No. 12 Hydraulic Automatic Lathe

3 NO. 12 HYDRAULIC AUTOMATIC LATHES

① Direct drive to spindle at 1800 R.P.M. Vacuum chucking fixture. *Machining cast aluminum cooking utensils.*

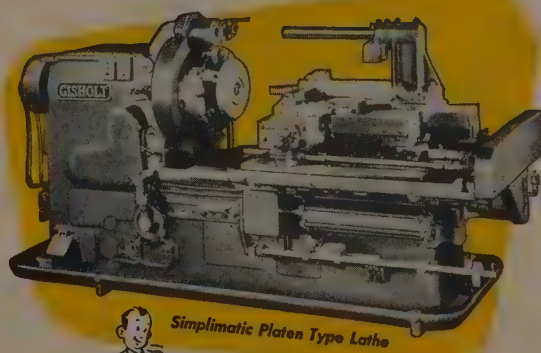
② Equipped with 12″ 3-jaw chuck, 10″ air cylinder. *Fast, complete machining of stamped steel coupling cover in one chucking.*

③ Equipped with air-operated tailstock. *Machining variety of forged steel gear blanks.*

2 SIMPLIMATICS

laten type Simplimatic equipped with special holding fixre and 12″ air cylinder. *Machining forged steel bevel gear.*

ertical Head Simplimatic with plunge type carriage; 21″ jaw air chuck and 16″ cylinder. *Machining second operaon on automobile flywheel.*



Simplimatic Platen Type Lathe

iscuss your problems with Gisholt engineers at the Show.

OOK AHEAD—KEEP AHEAD—WITH GISHOLT

SEE GISHOLT AT THE

Machine Tool Show

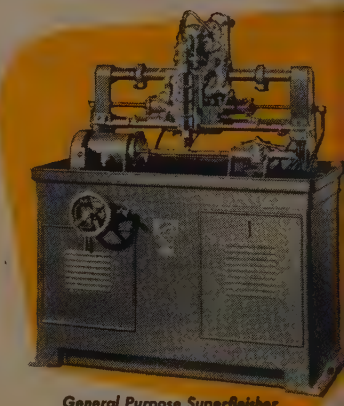
See

SUPERFINISHING

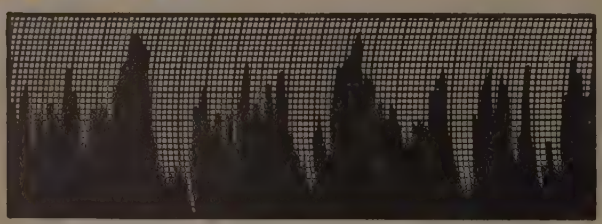
5 different examples of Gisholt Superfinishing

Superfinishing produces the finest bearing surfaces known. The mild scrubbing action done with a bonded abrasive removes: (1) annealed "smear metal" caused by grinding heat; (2) grinder scratches and ridges; (3) chatter marks, flats, etc., due to machine tool inaccuracies. Thus, the highly finished surface also has a more nearly perfect geometrical form, to support the most efficient oil film.

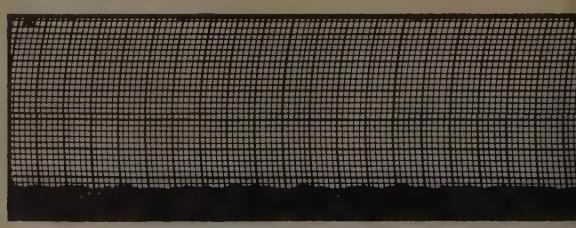
Superfinishing is one of the quickest and most inexpensive processes in the field of metal working. It pays big dividends through longer bearing life, reduced maintenance cost, and better reputation for your product. Learn about it! See it done!



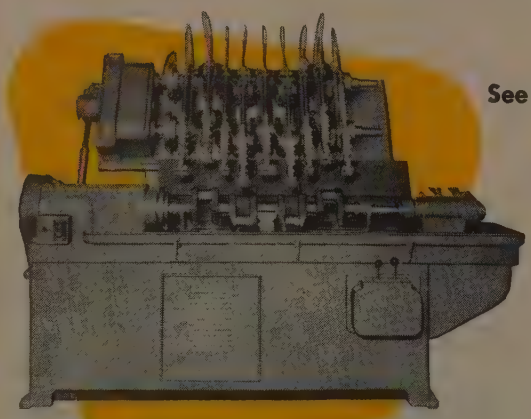
General Purpose Superfinisher



On this normal ground surface, the reading of the Brush Surface Analyzer shows a roughness of 20 micro-inches.



This Superfinished surface, on the same scale, shows a surface smoothness of 3 micro-inches.



Crankshaft Superfinisher

See for yourself how Superfinishing is done on these machines

① Model 51—General Purpose Cylindrical Superfinisher. *Superfinishing assorted cylindrical parts.*

② Model 53—A 9 Spindle Continuous Vertical Type Superfinisher. *Superfinishing automotive valve tappets.*

③ Model 54—Horizontal Two Spindle Cylindrical Superfinisher. *Superfinishing automobile stem pinions.*

④ Model 57—Horizontal Brake Drum Superfinisher equipped with air-operated fixture. *Superfinishing automotive brake drum.*

⑤ Model 56—Crankshaft Superfinisher. *Superfinishing main and crank pin bearings on automobile crankshafts.*

Additional exhibits will include Superfinishing Attachments for small and medium size engine lathes.

LOOK AHEAD—KEEP AHEAD—WITH GISHOLT

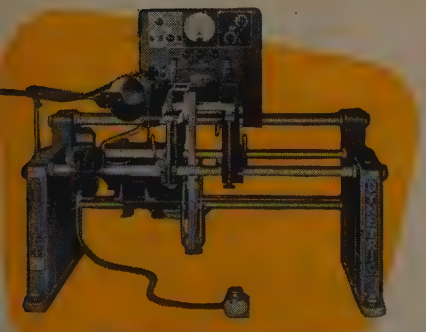
GISHOLT

SEE GISHOLT AT THE MACHINE TOOL SHOW

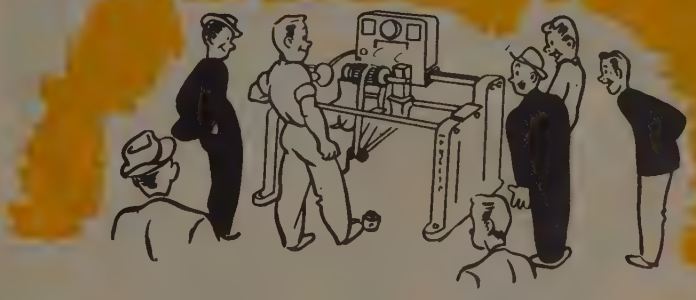
See BALANCING MACHINES

5 operating exhibits of Gisholt Static and Dynamic Balancing

For years, the outstanding leader in the field of static and dynamic balancing, Gisholt Balancing Machines locate and measure unbalanced forces in rotating parts with a speed and accuracy that is not equalled. Gisholt Balancers are available in a variety of sizes and types to balance parts weighing from a fraction of an ounce to many tons.



DYNETRIC 3S Balancing Machine

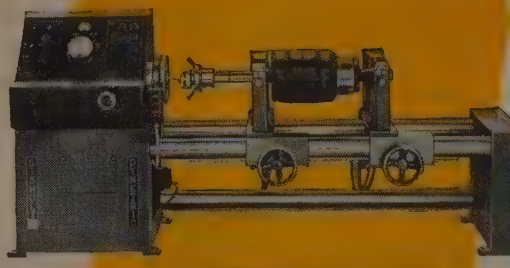


The 5 different demonstrations of Gisholt Balancing Machines are as follows:

1. No. 12E Static Balancer for parts up to 18" in diameter. *Demonstrating with test pieces.*
2. DYNETRIC* 1S Balancing Machine†. *Balancing small vacuum cleaner armatures.* A high production set-up.
3. DYNETRIC 31S Balancing Machine. *Demonstrating with a test cylinder.*
4. DYNETRIC 3U Balancing Machine. *Demonstrating with a large test rotor.*
5. Two-Element Unbalance Measuring and Correcting Equipment for Automotive-Type Crankshafts. *Semi-automatic. Units electrically connected. A "new high" for production.*

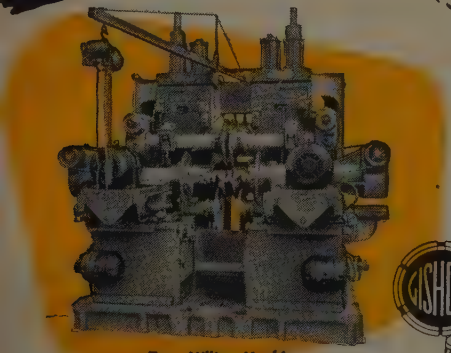
**DYNETRIC is a trade mark Reg. U. S. Pat. Off. by Westinghouse Electric Corporation.*

†Developed jointly with Westinghouse Electric Corporation.



DYNETRIC 3U Balancing Machine

And ...a preview of a new GISHOLT Special Turn Milling Machine



Turn Milling Machine

An impressive new application of old principles! *Simultaneously turn mills all the crank pins and faces the adjacent cheeks and counterweights on crankshaft to a finish ready for grinding.*

GISHOLT MACHINE COMPANY

Madison 3, Wisconsin

Gisholt equipment will be in steady operation throughout the ten days of the Machine Tool Show. See the many new Gisholt advancements that can mean so much to you in better methods and lower costs. Come—and bring your questions. Gisholt engineers in attendance will be glad to help you.

THE GISHOLT ROUND TABLE *represents the collective experience of specialists in the machining, surface-finishing, and balancing of round or partly round parts. Your problems are welcomed here.*

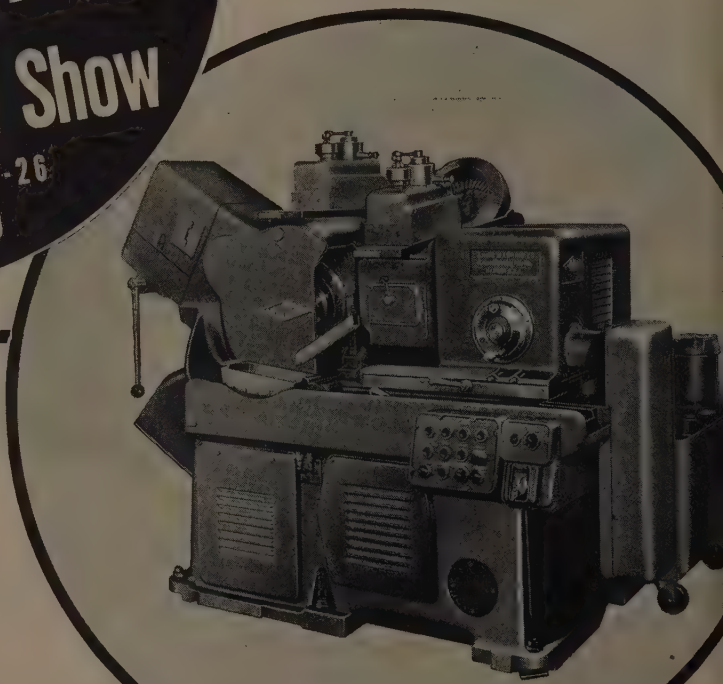
SEE THE GISHOLT EXHIBIT— SEE ALL OF IT!

LOOK AHEAD—KEEP AHEAD—WITH GISHOLT

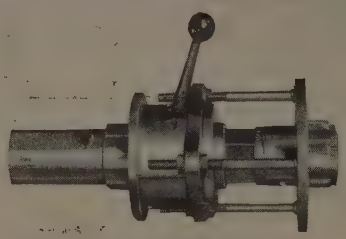
THE LATEST IN Thread CUTTING, IN ACTUAL

Visit the
LANDIS
MACHINE COMPANY
EXHIBIT · BOOTH No. 101
AT THE
Machine Tool Show
SEPTEMBER 17-26
CHICAGO

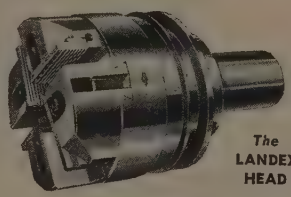
Varied threading jobs—from high-speed production to maintenance and jobbing operations—by cutting, grinding, and rolling methods—will keynote the exhibit. The equipment illustrated will be in operation on typical work pieces, and booklets will give basic data on the equipment and the operations performed.



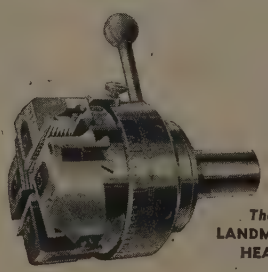
The LANDIS No. 1 CENTERLESS THREAD GRINDER



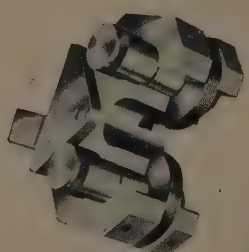
The LANDIS ALT COLLAPSIBLE TAP



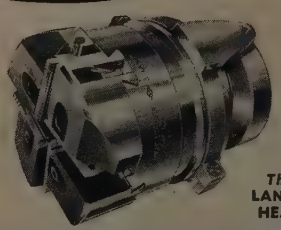
The LANDEX HEAD



The LANDMATIC HEAD



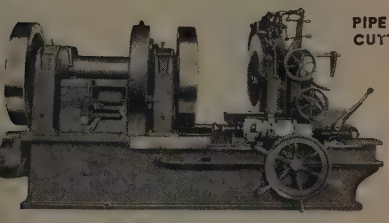
The LANROLL ATTACHMENT



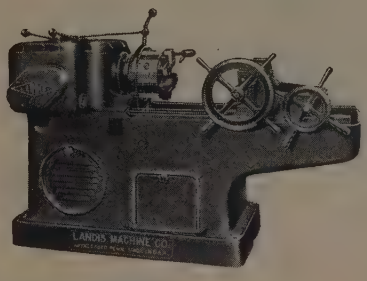
The LANCO HEAD

LANDIS

ROLLING & GRINDING EQUIPMENT OPERATION



PIPE THREADING & CUTTING MACHINE

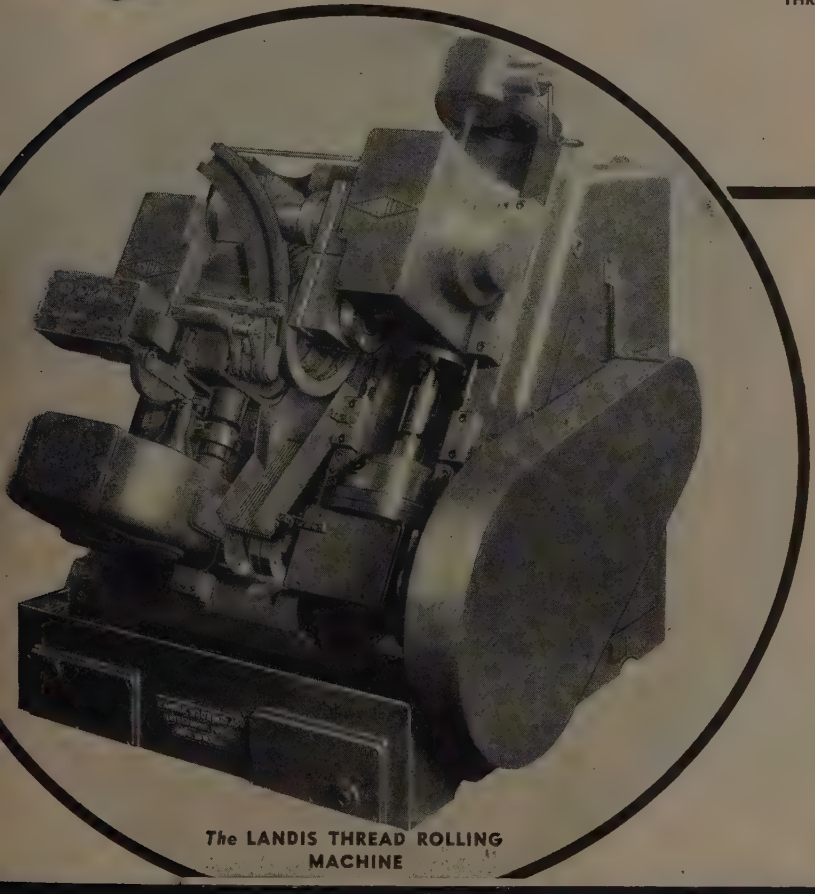


LANDMACO THREADING MACHINE

AUTOMATIC FORMING & THREADING MACHINE

4 SPINDLE SEMI-AUTOMATIC THREADING MACHINE

LANDIS 3/8" THREADING MACHINE



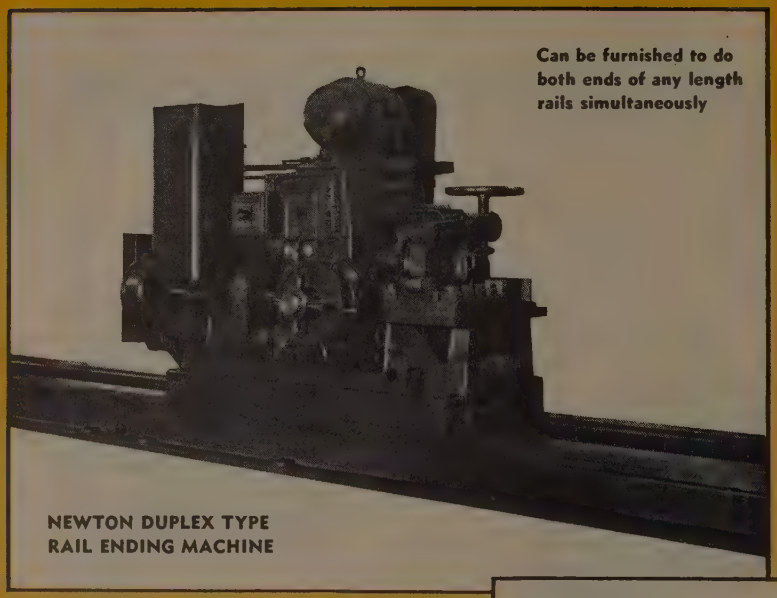
The LANDIS THREAD ROLLING MACHINE

Headlined in the exhibit will be the newest additions to the Landis Line: The Centerless Thread Grinder, for thru-feed and in-feed grinding, introduced last year; The Thread Rolling Machine, the newest addition, not yet announced; and The Lanroll Rolling Attachment, for rolling straight threads, just released. Landis Engineers will be there to discuss these new developments, and other equipment in the Landis Line.

The LANDIS CHASER

The Finest Thread Cutting Tool in Industry

MACHINE CO. LANDIS REG. U.S. TRADE-MARK PAT. OFF. WAYNESBORO PENNA., U. S. A.



Can be furnished to do both ends of any length rails simultaneously

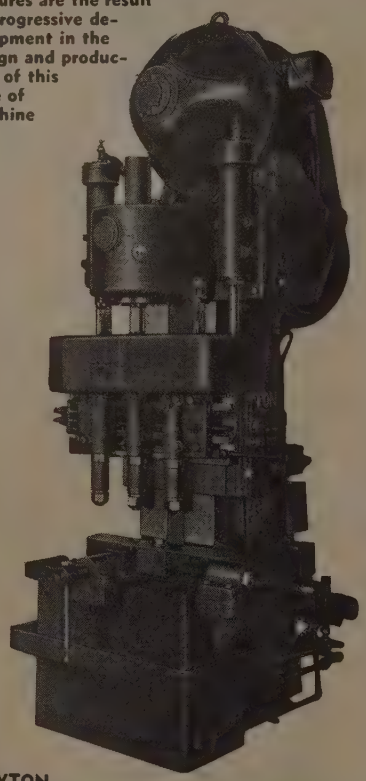
NEWTON DUPLEX TYPE
RAIL ENDING MACHINE

YOU
CORDIALLY
TO VISIT
No.
MACHIN
SH

BETTS BAR PEELING MACHINE

Eliminates much of the costly old-fashioned chip-hammer method of seam-removal

This machine's new and improved features are the result of progressive development in the design and production of this type of machine



NEWTON
RAIL DRILLING MACHINE

Send us your inquiries. Let Consolidated help solve your machine tool problems.

BETTS • BETTS-BRIDGEFORD • COLBURN • HILLES

CONSOLIDATED MACHINE TOOL

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OUR BOOTH
423
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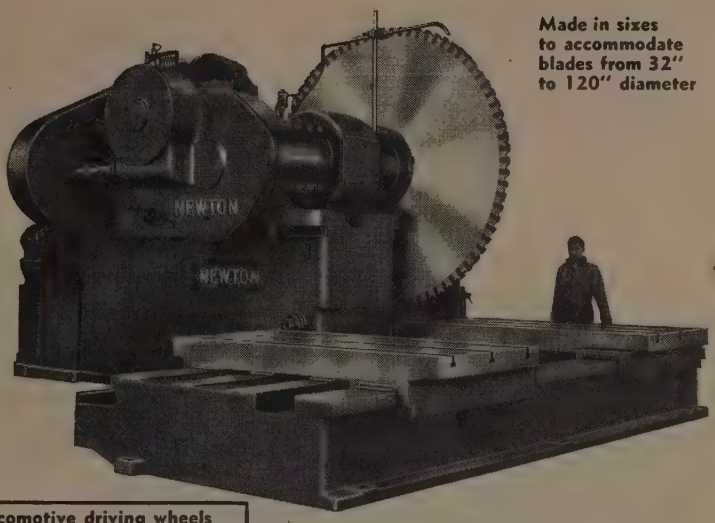
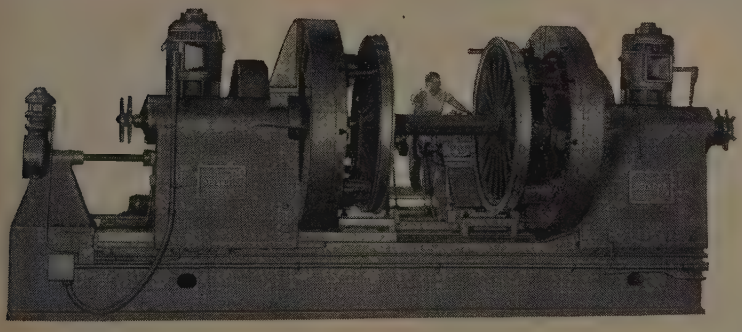


Made in sizes to accommodate blades from 32" to 120" diameter

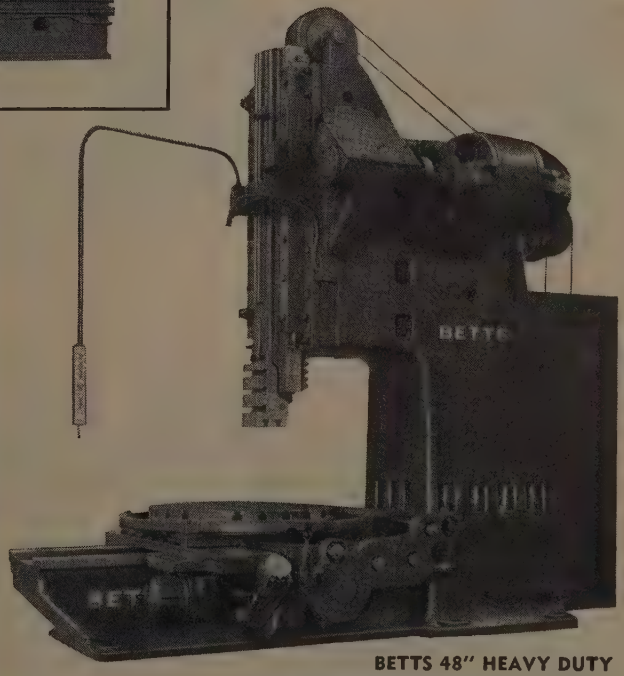
NEWTON 120" HEAVY DUTY
HYDRAULIC FEED COLD SAW MACHINE

Turns locomotive driving wheels from 28" to 88" tread diameter



SELLERS NEW DUAL DRIVE 90" WHEEL LATHE

Consolidated Heavy Duty Machine Tools have consistently proved their reliability over nearly a century . . . . since 1848



BETTS 48" HEAVY DUTY
RACK AND WORM DRIVEN SLOTTER

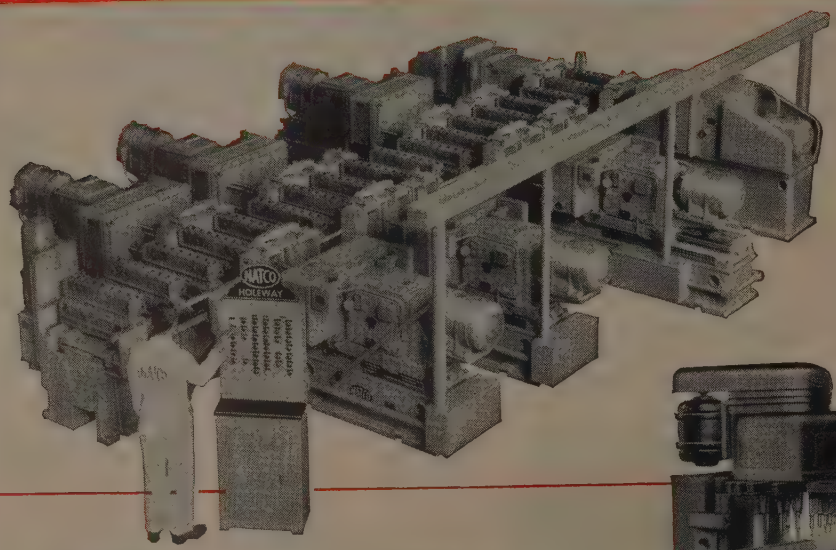
& JONES • MODERN • NEWTON • SELLERS

CORPORATION • ROCHESTER, N. Y.

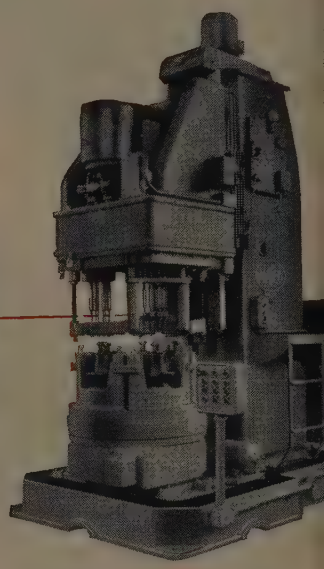
NATCO

Complete Range of sizes and

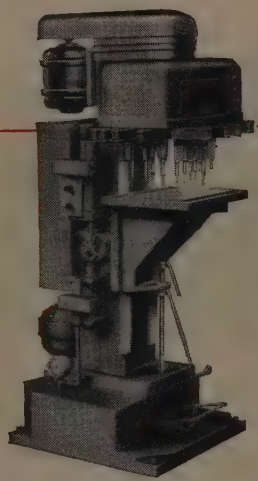
NATCO LEADERSHIP IS THE RESULT OF ENGINEERING SKILL



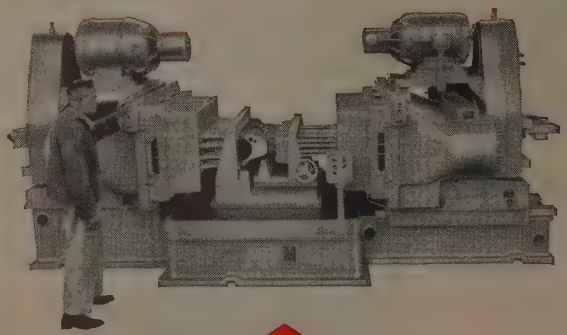
NATCO HOLEWAY AUTOMATIC PROCESSING MACHINE



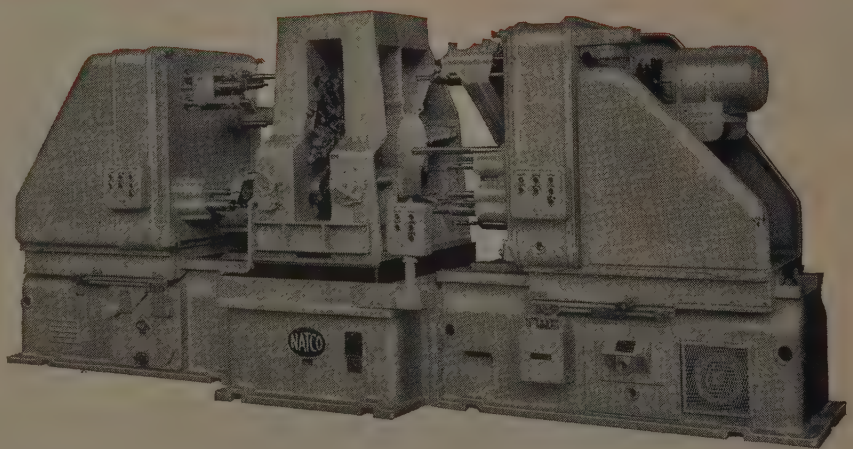
NATCO HOLESTEEL ADJUSTAB DRILLER AND TAPPER



NATCO LIGHT SENSITIVE DRILLER AND TAPPER



NATCO TWO-WAY TAPPER WITH INDIVIDUAL LEAD SCREW



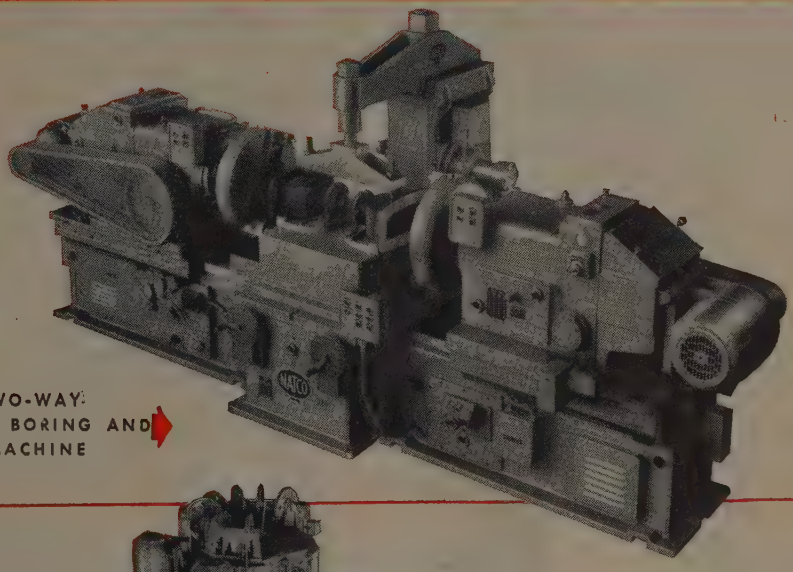
NATCO TWO-WAY TRUNNION TYPE DRILLING MACHINE

Dept. S

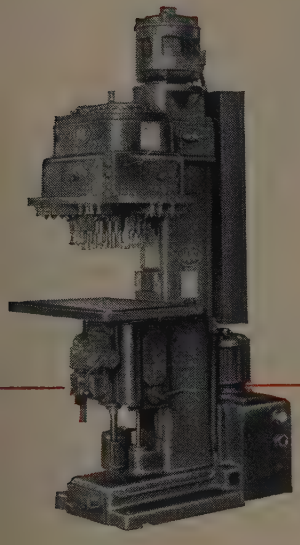
NATIONAL AUTOMATIC TOOL COMPANY, INC., RICHMOND, INDIANA, U.S.A. • *Branch Offices:* 1809 Engineering Building Chicago • 409 New Center Building, Detroit • 1807 Elmwood Avenue, Buffalo • 2902 Commerce Building, New York City

types of DRILLING, BORING, TAPPING and FACING machines

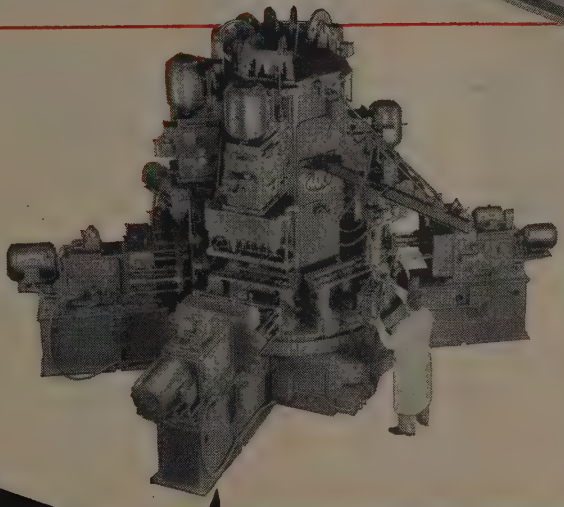
AND QUALITY WORKMANSHIP BACKED BY NEARLY A HALF CENTURY OF EXPERIENC



NATCO TWO-WAY TURNING, BORING AND FACING MACHINE



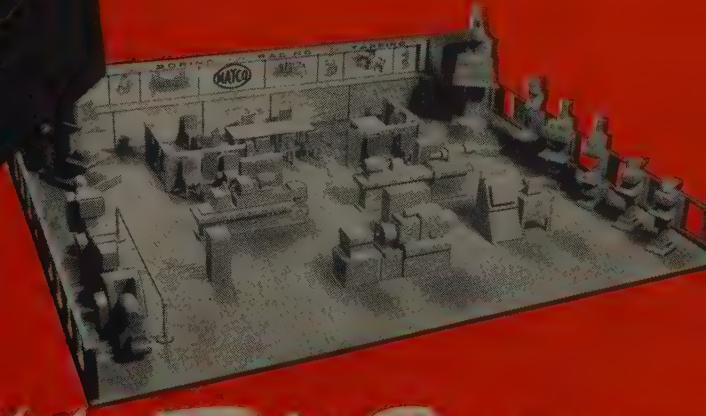
NATCO HIGH SPEED SENSITIVE DRILLER AND TAPPER



NATCO STATION TYPE MACHINE

See our Booth NO. 4

AT THE NATIONAL MACHINE TOOL BUILDERS ASS'N. SHOW SEPT. 17TH THROUGH SEPT. 26TH AT CHICAGO



NATCO

Call a Natco Field Engineer

SUTTON

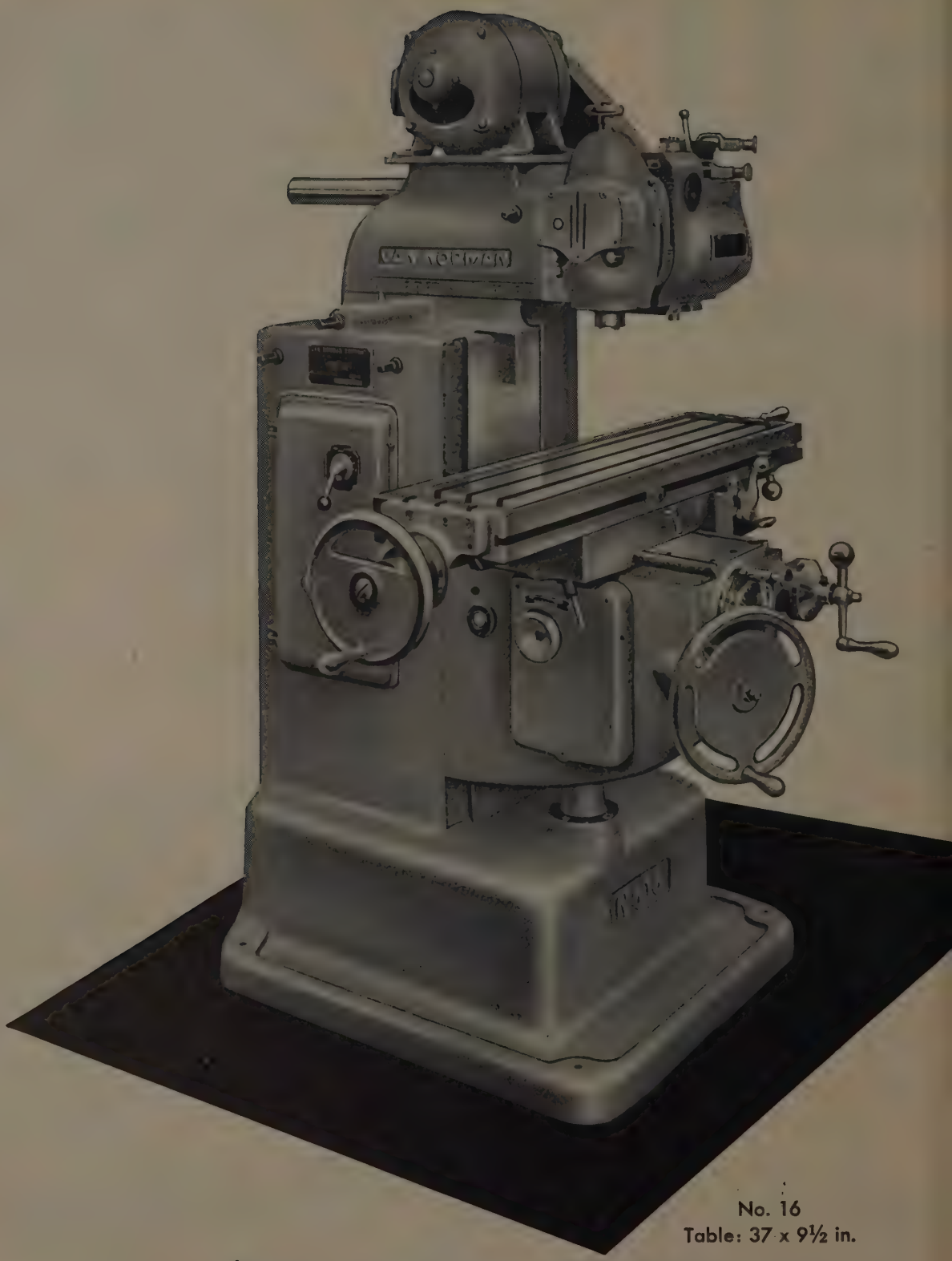
ENGINEERING COMPANY

Bar Straighteners, Tube Straighteners, Sheet Stretchers, Cold Bar Stretchers, Hot Bar Stretchers, Roller Levellers, Mechanical Hammers, Tube Expanding Machines, Polishing Machines, Shape Straighteners, Sizing Machines, Gag Presses, Automatic Shearing, Straightening and Sizing Units, Reeling Machines, Shell Sizing Machines, Special Straighteners for upset end bars and tubes and Mechanical Descaling Equipment.

ustained leadership..

N THE FIELD OF STRAIGHTENING EQUIPMENT

FFICES AND WORKS • BELLEFONTE, PENNSYLVANIA



No. 16
Table: 37 x 9½ in.

"It pays to Van Normanize"

THE NEW VAN NORMAN NO. 16 RAM TYPE MILLING MACHINE

FEATURING THE ADJUSTABLE CUTTERHEAD, MOVABLE RAM AND BUILT-IN CONTROLS

This new versatile miller . . . the Van Norman No. 16 . . . is especially applicable for tool room, pattern shop, die and mold shop, experimental laboratory and machine shop. Thoroughly modern design features . . . plus the adjustable cutterhead and movable ram . . . make this new miller outstanding in its work range. Not only does the No. 16 miller save time by minimizing work set-ups, but its versatility, accuracy and ease of control speeds up milling operations and cuts cost. Write for information and bulletin.

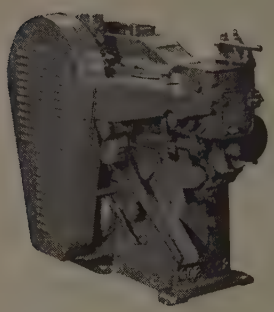
CHECK THESE VAN NORMAN ADVANTAGES

- Adjustable cutterhead permits conventional horizontal and vertical as well as angular milling with standard cutters and arbors.
- Movable ram in combination with saddle and knee movement increase versatility and work range of the machine.
- Single lever built-in controls, mounted on side of column, enable the operator to start and stop spindle only . . . or start spindle and coolant flowing . . . or start spindle drive, power longitudinal table feed and coolant. The same lever reverses spindle drive direction, etc.
- "Start-Stop" switch on front of knee permits operator to start and stop machine from the front operating position.
- Nine spindle speeds from 95 to 2000 R. P. M.
- Power feed is provided for table longitudinal travel. Nine feeds from 5/8" to 16".
- New heavy cutterhead plus new spindle transmission provides greater load-carrying capacity.
- Large hand wheels and large dials permit easy cross, vertical and longitudinal adjustments.
- Available with plain or universal saddle.

VAN NORMAN COMPANY

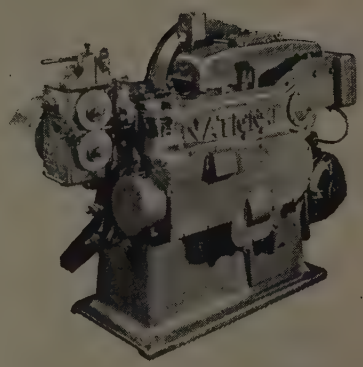
SPRINGFIELD 7, MASSACHUSETTS

AT DISPLAY AREA



NATIONAL AUTOMATIC
HOLLOW RIVET HEADER

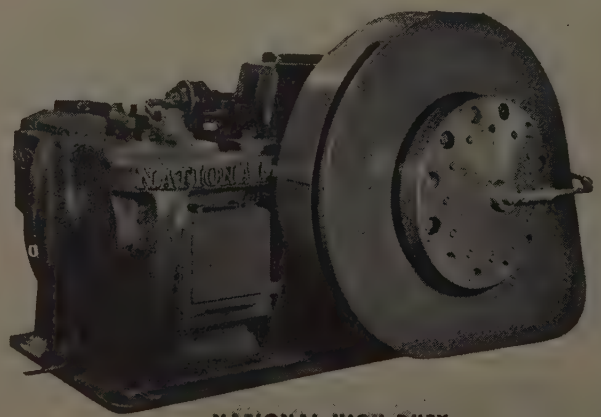
New in principle, this machine produces 125 hollow rivets per minute. Rivets are pierced – not drilled – and are extremely accurate for length and uniformity of wall thickness. See it in operation at the Machine Tool Show.



NATIONAL DOUBLE STROKE
SOLID DIE COLD HEADER

See this machine produce Phillip's Screw Blanks at high speed. A companion machine will be operating at extremely slow speed to help you visualize how these machines function.

See the National High Duty Forging Machine produce extension adapters for detachable socket wrenches, and the National High Speed Forging Maxipres produce detachable-type socket wrenches. These machines will demonstrate their ability to produce hot steel forgings to "Machine Tool Accuracy" at speeds unequalled by other methods.

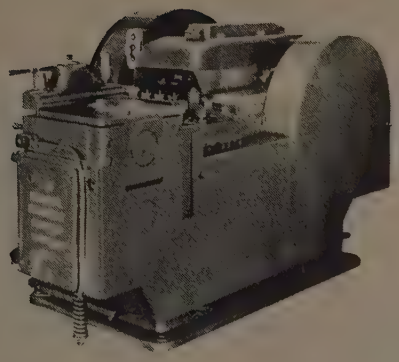


NATIONAL HIGH DUTY
FORGING MACHINE

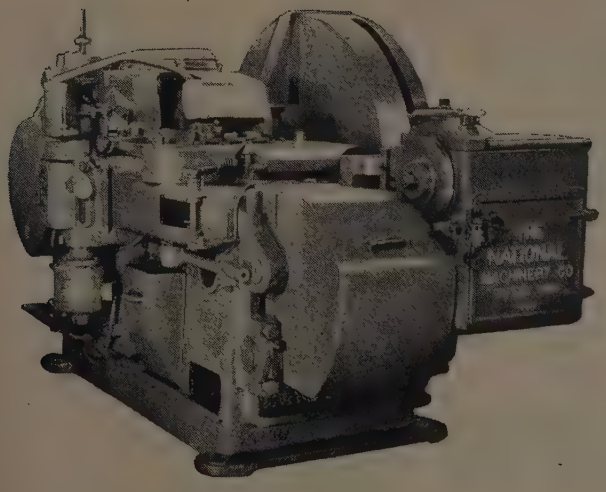
NATIONAL HIGH SPEED
FORGING MAXIPRES

number **17**

MACHINE TOOL SHOW
CHICAGO SEPT. 17-26



NATIONAL AUTOMATIC COLD NUT FORMER
(New in principle—first showing at Machine Tool Show)



NATIONAL BOLTMAKER

NATIONAL AUTOMATIC HIGH SPEED PRECISION NUT TAPPER
(New high-speed precision tapper—first showing at Machine Tool Show)

At Display Area Number 17, during the Machine Tool Show, the three Nationals illustrated above will constitute a complete bolt and nut making unit.

The Boltmaker will be producing eighty-five Hexagon Head Cap Screws per minute to Class III fit.

The new Automatic Cold Nut Former will be producing one hundred 3/8" S. A. E. nut blanks per minute with 50% scrap saving over any previous method. Conveyed automatically to the new National Precision Nut Tapper, these blanks will be tapped to Class III fit.

You are cordially invited to see these modern Nationals mass-producing bolts and nuts to higher standards of accuracy and strength.

NATIONAL
MACHINERY COMPANY
TIFFIN, OHIO.

DESIGNERS AND BUILDERS OF
MODERN FORGING MACHINES—MAXIPRESSES—COLD HEADERS—AND BOLT, NUT, RIVET AND WIRE NAIL MACHINERY

New York Detroit Chicago

See the Designs that

Establish the Trend in

Precision Grinders

LANDIS TOOL

Precision Grinders

at the Machine Tool Show

Booth 303

LANDIS TOOL COMPANY • WAYNESBORO, PA.

Exhibiting

P&J

AUTOMATIC TURRET LATHES

Visitors at the Machine Tool Show can profitably invest time at the Potter & Johnston exhibit. Ten P&J Automatic Chucking and Turning Machines are shown four of which are specially tooled and in full productive operation on specific subjects. The other machines are motorized and wired for operation on non-cutting cycles.

Included in the exhibit are two machines, the P&J 3U and 3U H.S. Speed-Flex Automatic Turret Lathes, entirely new models, shown publicly for the first time. Our engineers in attendance at the P&J exhibit welcome opportunities to demonstrate performance on such operations as taper facing, recessing, back turning, grooving and the use of available automatic spindle speed and feed changes.

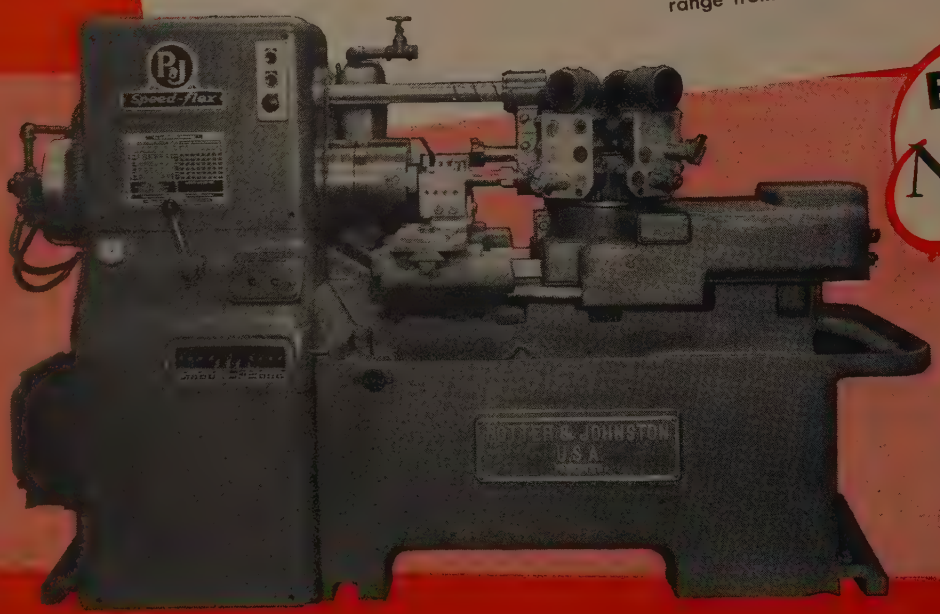
THE NEW 3U AND 3U-H.S. SPEED-FLEX

These new machines are fast production units for machining small castings up to 6" diameter. Aside from chucking of work and removal of finished piece, they are fully automatic.

Four automatic changes of spindle speed and three changes of feed are provided and are handled by multiple disc clutches under electro-pneumatic control.

The Type 3U Speed-Flex has a standard spindle speed range from 73 to 1445 rpm; optional dual speed ranges from 36 to 711 rpm or 73 to 1445 rpm are available.

The Type 3U H.S. Speed-Flex is identical to the 3U Type except in speeds. It is a high speed machine with a full speed range from 104 to 2068 rpm.



BOOTH No. 43

PIONEER MANUFACTURER OF AUTOMATIC TURRET LATHES

5-D H.S.

The Type 5D-H.S. Power Flex has four automatic changes of spindle speed while under cut; three selective automatic changes of feed; automatic binding of turret following index; powerful, direct cross slide action and a constant high speed rapid traverse motion to cross slide and turret slide.

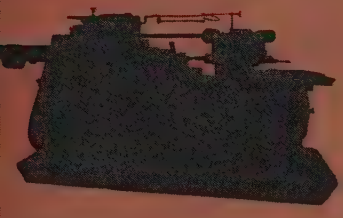
The 5D Power-Flex is of unit construction. Ways are tool steel bonded to low carbon steel tongued to base and clamped rigidly in position. There are 20 changes of speed between 16 and 304 rpm, arranged in five sets of four automatic changes.

5-D-2-15"

The 5D2-15" Power-Flex is a two-spindle automatic turret lathe designed to meet production requirements where manufacturing operations call for an output in excess of that to be secured from a single spindle unit. It is a machine of greater power and rigidity. Four automatic changes of spindle speed while under cut, three selective automatic changes of feed and automatic binding of turret after index are provided.

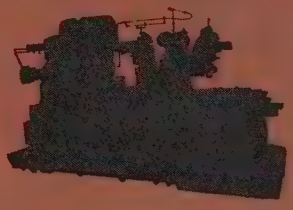
The 15" model at the Machine Tool Show has 28 changes of speed between 16 and 525 rpm. The 5D2 Type is built also in 9", and 12" headstock units.

Other P&J Machines...



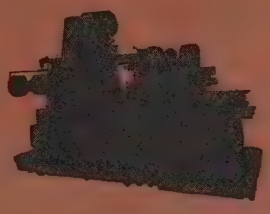
-D H.S.

A high speed automatic turret lathe with a maximum spindle speed of 696 rpm. This machine has 15 changes of speed arranged in five sets of three automatic changes. Feeds vary directly with spindlespeed.



5-DELX

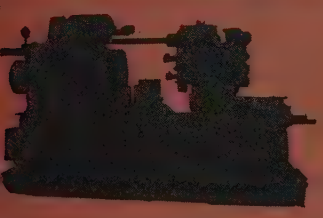
A modification of the standard Type 5D Power-Flex having elevated long travel and extended. 20 changes of speed between 16 and 304 rpm. are arranged in five sets of four automatic changes.



5-D-2-9"

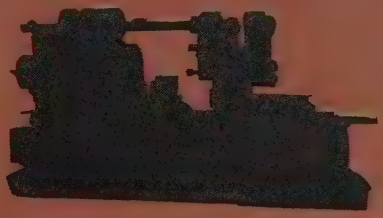
Twenty-four changes of speed between 27 and 615 rpm are provided in this two-spindle 9" headstock Power-Flex. Specifications, in general, follow those of the 15" two-spindle unit.

...at the Machine Tool Show



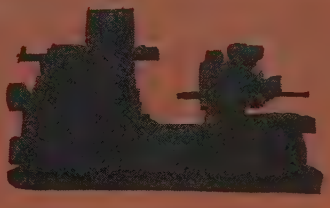
-DRE H.S.

This automatic turret lathe has four automatic changes of spindle speed, three selective automatic changes of feed and automatic binding of turret following index. Headstock unit provides 20 changes of speed between 12 and 305 rpm.



6-DREL

The general specifications of this machine follow those of the 6DRE Automatic Turret Lathe, except that this unit has an extended bed. Like all P&J machines, it has great power and rigidity.



8-DXT

Twenty changes of speed between 7 and 160 rpm, and arranged in 5 sets of 4 automatic changes are provided in this extended capacity automatic turret lathe. Feeds vary directly with spindle speed. Turret is automatically clamped in position after indexing.

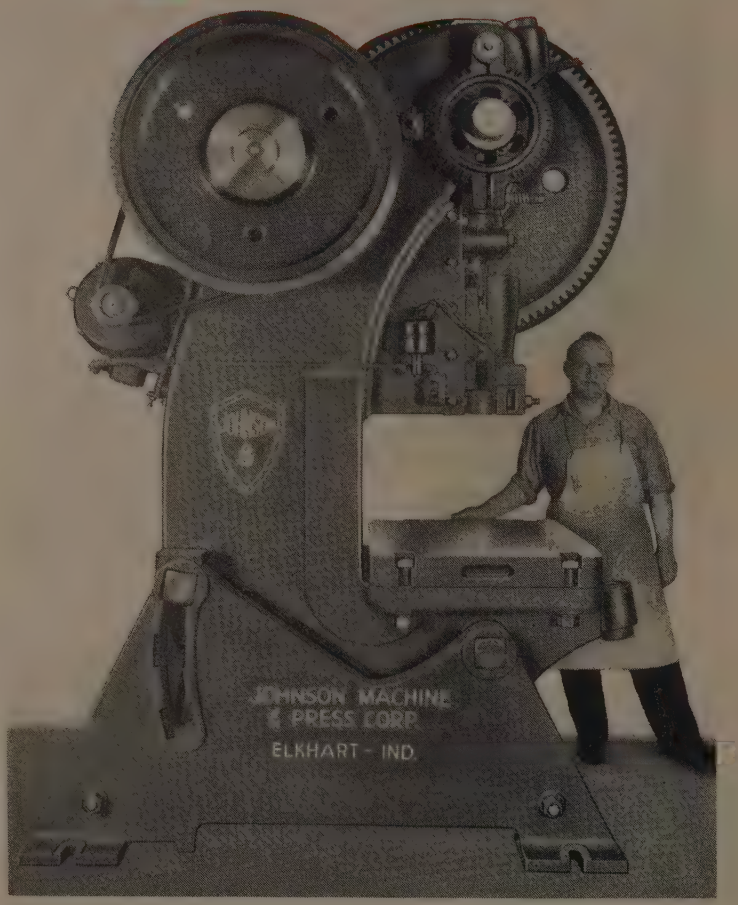
TTER & JOHNSTON MACHINE CO., Pawtucket, Rhode Island.

at the PRODUCTION AND MACHINE TOOL SHOW

THE BIG NEWS OF '47 IS IN BOOTH 47

THE NEW *Johnson*

90 TON *INCLINABLE* POWER PRESS



See the new Johnson 90 ton inclinable power press on display at The Production and Machine Tool Show in Chicago, September 17-26th. You'll find this new 90 ton press and its famous little brothers on exhibit in booth 47. See the Johnson presses in operation. Get complete specifications and information on the presses that are best suited to your particular needs.

Remember! It's **Booth 47** *in the* **'47 Production and Machine Tool Show**

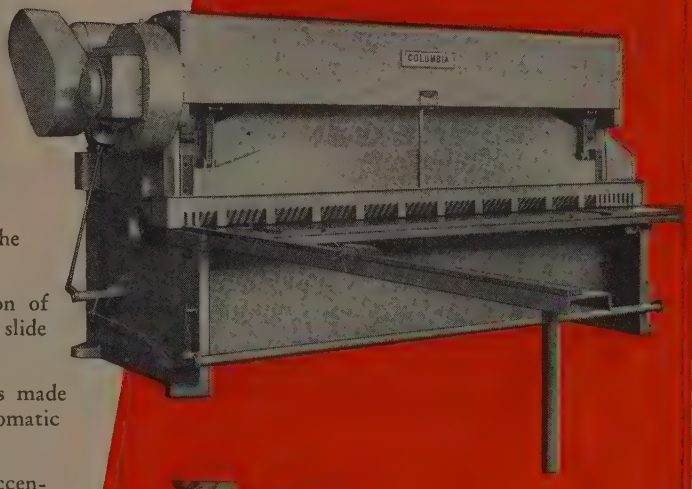
JOHNSON *Machine and Press Corp.*

620 WEST INDIANA AVE. ELKHART, IND.

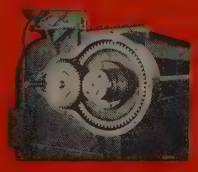
Columbia's ADVANCED DESIGN

brings you greater production and operating economy

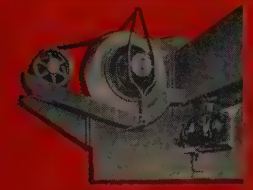
STEEL SQUARING SHEARS



- **Shear blades are longer** than normally required for cutting full width of material. Provision made to notch or trim sheets longer than blades without tearing or nicking.
- **No adjustment necessary** to change the manner of shearing.
- **Sturdy, rigid, rolled steel** construction of all main members, housing, base, table, slide and top cross tie.
- **Solid, positive clutch** has six jaws and is made of alloy steel with hardened faces and automatic stop cam.
- **Stainless steel scales;** heat-treated, forged eccentric shaft; centralized lubrication; finger guard, and other advanced design features.



● **All gears of precision cut steel** — which together with the clutch — operate in oil in an oil-tight case.



● Of special Columbia design this highly efficient friction clutch permits stopping and starting the slide at any part of the stroke.

POWER PRESS BRAKES

- **Motor-driven slide adjustment** . . . slide can be operated in parallel or non-parallel position with base, to provide full bearing with the housing guides.
- **Low-deflection slide and base** . . . maximum deflection is .001" per foot of machine width.
- **Sturdy, rolled steel construction** of housings, slide, base, top cross tie and all principal members.
- **Cut steel gears operating in oil** are used throughout, first drivers being helically cut.
- **One-piece forged eccentric shaft** has eccentrics forged integrally with the shaft.

For full information, capacities, etc., of Columbia Steel Squaring Shears and Columbia Power Press Brakes write for Bulletin 105. Columbia Machinery and Engineering Corporation, Hamilton, Ohio.

Columbia

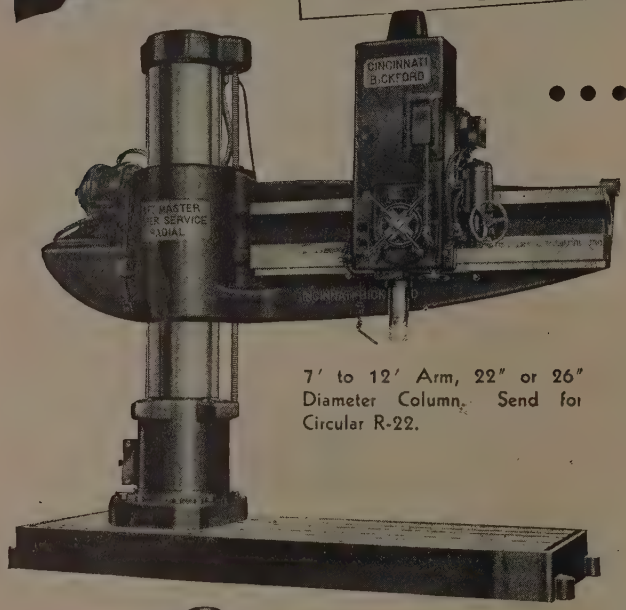
MACHINERY *and* ENGINEERING CORP.

HAMILTON, OHIO

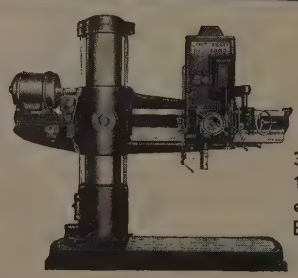
In Action—

The Complete CINCINNATI BICKFORD Line

...OF DRILLING



7′ to 12′ Arm, 22″ or 26″ Diameter Column. Send for Circular R-22.



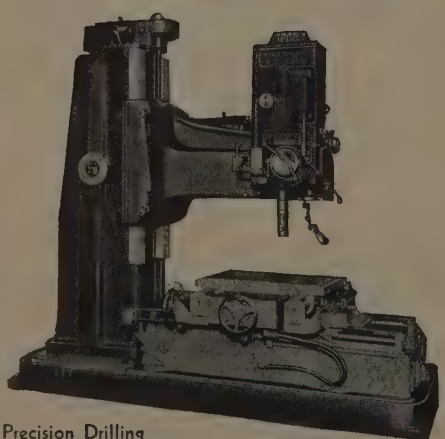
3′ to 8′ Arm, 11″, 13″, 15″, 17″ or 19″ Diameter Column. Send for Booklet R-29.

You are invited to inspect this representative group of SUPER SERVICE Metal Drilling Machines in Booths 514 to 517 at the Machine Tool Show.

You will see SUPER SERVICE Radial Drilling Machines ranging from 2½′ arm length and 7½″ diameter column to 10′ arm length and 26″ diameter column. These machines have many new features never before offered as standard equipment.

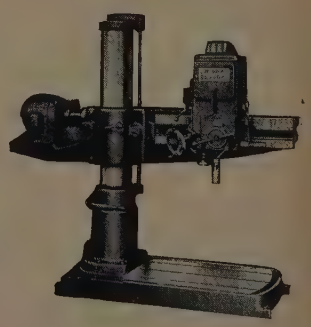
If you are interested in Upright Metal Drilling Machines you will want to see the new SUPER SERVICE Uprights in 21″, 24″ and 28″ sizes. Compound table, Box Column or Round Column will be shown.

You will also be interested in seeing the highly accurate SUPER SERVICE Jig Boring Machine as well as a new Portable Horizontal Metal Drilling Machine. In addition, there will be shown the new Precision Drilling Machine developed for use with the Bullard Man-Au-Trol Spacer or for very large work.

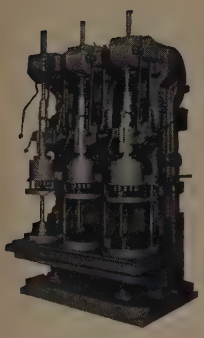


Precision Drilling Machine. Circular FH.

3′ or 4′ Arm, 11″ Diameter Column. Send for Circular R-28.

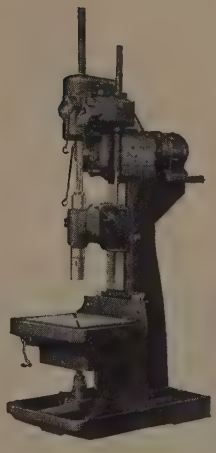


3′ or 4′ Arm, 9″ Diameter Column. Send for Circular R-21B. 2½′ Arm, 7½″ Diameter Column. Send for Bulletin R-26-A.



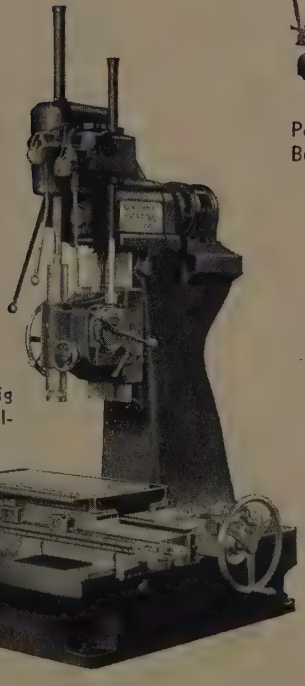
Direct Drive SUPER SERVICE Uprights. Booklet U-27.

MACHINES



Portable Horizontal. Bulletin HR.

SUPER SERVICE Uprights. Booklet U-25.



SUPER SERVICE Jig Boring Machine. Bulletin U-26.

We hope you will see these machines, many of which will be in operation on production work at Chicago.

RADIAL AND UPRIGHT SUPER SERVICE DRILLING MACHINES

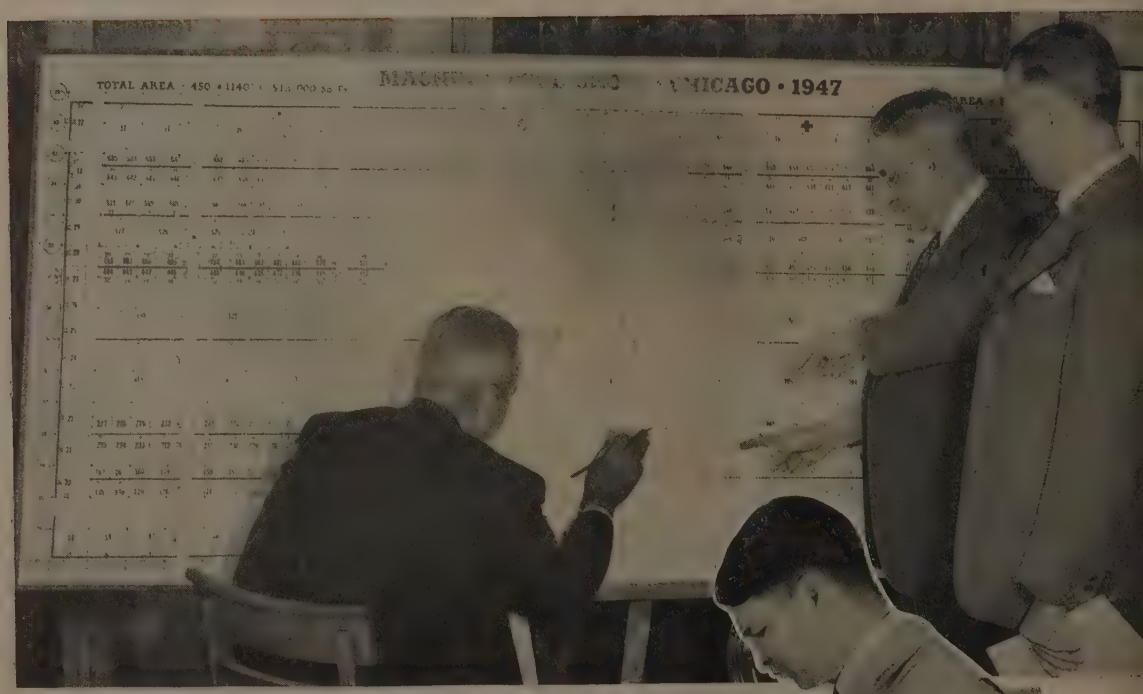
Equal Efficiency of Every Unit Makes the Balanced Machine

MACHINE TOOL SHOW
DODGE PLANT
Chicago, Sept. 17-26
Booths 514 to 517

THE CINCINNATI BICKFORD TOOL CO. Cincinnati 9. Ohio U.S.A.

How to Get Maximum

FROM THE



Above—Executives can insure complete coverage by assigning to qualified individuals definite "zones of responsibility", reports on which will assemble into a "master review"

Right — Instrumentation will vie with machines and tooling and should be studied from standpoint of ability to help inspection keep pace with production under tightening limits

Benefit 1947 Show

Suggestions by a "survivor" of many Machine Tool Exhibitions, on how to plan coverage so that the end-result will be a comprehensive report of real economic, production and engineering value to your company

THIS article is based on personal experience as a member of the machine tool industry, rather than on that as an industrial editor. I want to drive home to you men of industry a few things about "covering" the National Machine Tool Show— points which I learned the hard way when I was operating over on your side of the fence.

My practical industrial experience with machinery exhibitions began in 1915 and included active participation as an exhibitor of multiple spindle automatics in the National Machine Tool Show in Cleveland in 1935. During those 20 years I was a participant in and one of the directors of the now historic New Haven Machine Tool Expositions, from 1920 to 1927. I participated in the National Machine Tool Shows in Cleveland in 1927 and 1929 both as an exhibitor and as a director of the Machine Tool Congress.

My first bit of advice to every one of you who will attend the big Machine Tool Show at the Dodge-Chicago plant is: "Don't set forth with the idea that this is going to be any picnic." Actually, it is going to be one of the toughest assignments, and at the same time one of the most important assignments, that you ever have undertaken in behalf of your company or yourself.

Although all forms of excessive entertaining are frowned upon by the Show management and by the National Machine Tool Builders' Association, there are sure to be many pitfalls for the unwary in the way of extra curricular activities. It will take every ounce of your mental and physical vim and vigor to do justice to this tremendous show and the highly important evening sessions of the Machine Tool Congress. Skip the Chicago night life from September 17 through 26.

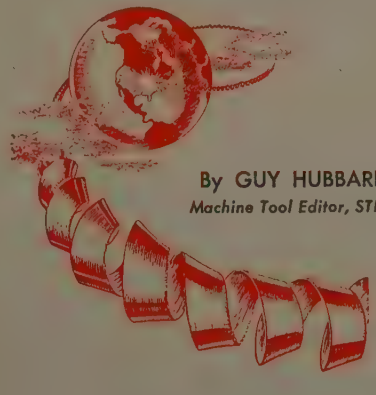
Now let's get down to some other fundamentals for successful "audience participation" in this big Machine Tool Show. As one of the top executives of a machine tool using company, who should you send to the Dodge-Chicago plant? How should you "brief" your men on their methods of coverage? How should your delegation be supervised while in Chicago? How long should your people remain there? How should they report back on the Show for most complete and lasting benefit to your company?

By all means you should attend this Show yourself. However, unless yours is a small organization, don't try to cover the Show all by yourself. I knew of many cases in 1927, 1929 and 1935 when the "big boss" arrived on the scene alone, took one frantic look around, then wired back: "Coverage this show colossal job. Send at least five more men immediately—preferably general foreman, production manager, master mechanic, head toolmaker and chief engineer." If such extra coverage was necessary in 1935, draw your own conclusions what the situation will be in 1947 with a Show more than twice as big.

So if you haven't already done extensive, careful planning, do it now. Even if you have plans, you had better go over them again. Chances are you have underestimated the task of dealing effectively with a Show covering 513,000 sq ft, including 294 exhibitors and comprising something like 2000 pieces of equipment worth more than $16,000,000.

Picture yourself wandering around with thousands of others in a 12 acre lot filled with all the latest machine tools and related equipment, all these machines operating under power, all bidding for your attention. You are indeed in "the world's greatest machine shop". Not even Superman alone could deal with such a "nine-day wonder"—not even in nine days. Obviously here is a "mass production" job demanding adequate manpower, scheduling and breakdown according to individual "skills", and final assembly of detailed information in a general report covering all phases of interest to your organization.

This job involves study of information of hundreds of metalworking machines and attachments; of tooling, tool materials and tool design; shop techniques; of product design suited to these new machines and new techniques; of related materials handling—including work holding and chip disposal; of coolants and lubricants, including refrigeration and fume disposal; of personnel considerations, including safety and fatigue elimination; of economic con-



By GUY HUBBARD
Machine Tool Editor, STEEL

siderations, including conservation of power, materials and floor space.

In view of the prior registration by mail, promoted by the National Machine Tool Builders' Association—can you at this "eleventh hour" increase your "manpower" at the National Machine Tool Show? I have taken this up with Tell Berna, general manager of the Association. Tell's answer is, "Yes, you can bring more men. They can pay their $1.00 fees and register right at the Show. However, don't expect housing miracles on the part of the Association staff, the Chicago Convention Bureau, or hotel room clerks."

Getting back now to questions raised in the fifth paragraph of this article; first, as one of the top executives of a machine tool using company, who should you send to the big Machine Tool Show? That question reminds me of the ancient story from India about the blind men and the elephant, each of whom "sized up" his particular part of the animal by touch. None of the individual reports gave a clear idea of the elephant, but their assembled reports well could have given an excellent overall idea.

If you will follow this same procedure, using however specialists with keen vision to "size up" each phase of the Machine Tool Show in which your company is especially interested, the assembled reports of these specialist will be of far more value than an overall report by any one individual possibly could be. In assigning to each man his "definite zone of responsibility," I have in mind classes of machines based on machining techniques, rather than subdivisions of the floor area. In other words, make one man responsible for a report on milling and related techniques, another on turning, and so on over the machine shop practices of vital interest in your business. If it is necessary to double up assignments, then combine such things as milling and broaching, for example.

In briefing these men on their assignments, urge them to cut through the verbiage of salesmen and get basic facts on speeds, feeds, finishes, metal removed per minute per horsepower, convenience and safety of operation, and ability of a machine to "pay for itself" through faster production of better parts, improved morale of operators, savings in floor space, etc. Notes taken on the spot will be worth more than brief cases loaded with catalogs.

Have your men make notes on clever tooling methods. Better yet, have one or more of your tool engineers "case" the Show for new ideas in tooling—of which there will be literally hundreds. You can cash in immediately on their reports by having tooling of your existing machines overhauled and improved accordingly.

In lining up men to cover this Show, don't overlook your draftsmen. Here is the chance of a lifetime to get those boys out of their "ivory towers" and to get acquainted at first hand with the latest methods through which metal parts are machined and otherwise brought to shape, size and finish. How can you expect draftsmen without up-to-the-minute information on shop methods to specify such methods on drawings, or to design parts to meet requirements of the new techniques?

More than 22 years ago, Ernest DuBrul, the first general manager of the National Machine Tool Builders' Association, urged management to send draftsmen "out where the production bugs will bite them". That advice is even more to the point now than it was in 1925, when manufacturing methods were fewer and simpler than they are today.

As for the length of time your men should remain at the Show, don't pull them off their assignments until they have them completed and not until they have had an opportunity to make at least one complete "round" of the Show. This last recommendation comes from ex-

perience in introducing new workers to detail jobs under mass production. Men gain far better conception of the importance of their own particular tasks when they realize how each on fits into the big picture. You may have to couple-up and triple-up in your hotel rooms, but stick with it!

Regarding supervision of delegations, a number of executives tell me that they plan to have daily round-ups of what each day's work at the Show has brought forth. This will keep the delegates on their toes, and will insure against duplication of effort or overlooking of important considerations not originally on the docket. It also will discourage "wandering off the reservation" by any individuals.

If copious notes are made on the spot, the task of compiling reports will be made comparatively simple. However, these reports should be dicted without delay after return from the Show. Don't attempt to be too brief if that means sacrificing valuable information—at the same time don't pad them.

Important thing is to get down in black-and-white and leave editing until later. Editing and compilation in some cases can be left to others who are skilled in digesting and presenting data for use by various executive, production and engineering groups—especially in large organizations.

To you top executives of the metalworking industry who attend this 1947 Machine Tool Show as head men of delegations, let me say this in closing: "Don't tie yourself up with a lot of details—leave the details to others. You should be free to meet the leaders of the machine tool industry; to get posted on major trends in the economics of mass production; to get a true perspective on the relationship between Men and Machines in that era of intensified world competition with which we now stand face-to-face.

Fig. 1 — Right, new ideas in tooling gleaned from the 1947 Show will stimulate production on older machines while awaiting delivery of the improved models unveiled at Chicago

Fig. 2 — Below, draftsmen should be encouraged to attend the National Machine Tool Show, to become acquainted with latest production techniques and how to design parts to "fit" these methods

Economic Significance OF THE 1947 Machine Tool Show

By H. L. TIGGES
Vice President and Sa'es Manager
Baker Brothers Inc., Toledo. O.
and
Chairman, Sales and Service Committee
National Machine Tool Builders Association

WITH the metalworking industry of the United State aiming for a 1947 total of $55 billion (according t STEEL's "Metalworking Industry Reports Prospects fo 1947"), the time has come for machine tool salesmen t start selling.

During the fevered rush for production in the wa years, sales departments of American manufacturers an their dealers' sales organizations became expediters an engineers, helping to get machine tools built and de livered and then helping the users to get the most out o their machines. These temporary technicians rendered a fine service and one that was vital to success in th war effort. Such service was a fine kind of salesmanship too for American builders are characterized by the way i which they stand back of the machines they sell.

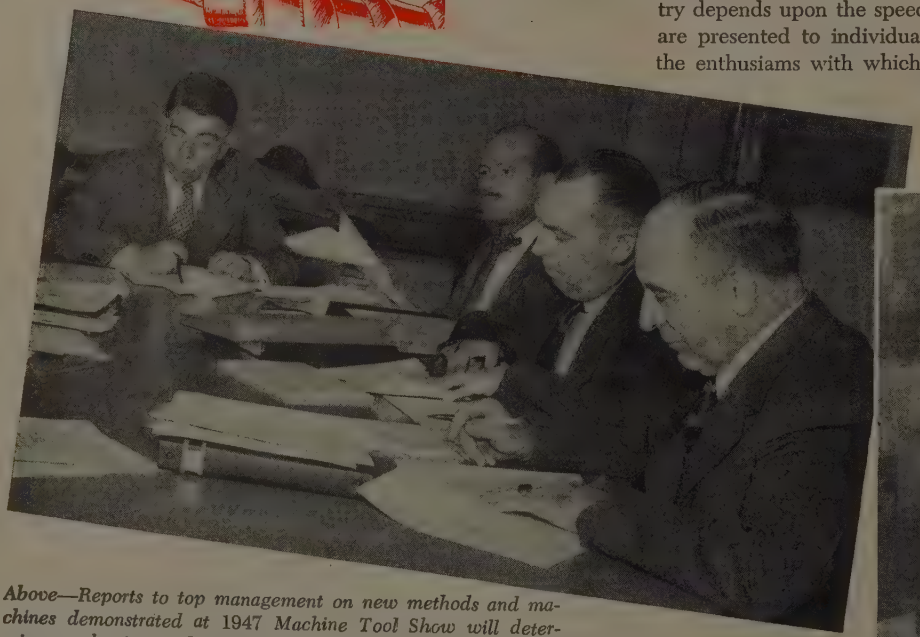
In those war years machine tools often were ordered on a quantitative basis, with the salesman being the one pursued and cornered to take orders larger than he had ever dreamed of before the war. Few buyers had either time or desire for a careful analysis of more than th immediate requirements of their plant. Their paramoun immediate requirement was quick delivery of machine tools that would help them catch up with their own orders from the single consumer—the government.

Buyer and seller both were involved in a race agains time. As a natural consequence of this quantity produc tion—in addition providing the tools that won the war— there were two other results:

(1) American tool manufacturers had no opportunity t put into production new designs

(2) American machine tool salesmen had no opportunity to keep up with the new designs and capabilities of ad vanced models being created on the drafting board.

Today the machine tools offered to the market b American manufacturers represent the cumulative ad vances of the seven war years. The future of the indus try depends upon the speed with which these new model are presented to individual buyers here and abroad and the enthusiams with which they are accepted.



Above—Reports to top management on new methods and machines demonstrated at 1947 Machine Tool Show will determine production and equipment policies throughout industry Right—Just as 1935 Machine Tool Show set pattern which met challenge of World War II, 1947 Show now inspires new models to meet postwar competitive conditions

Today the buyer and the seller are still running a race, ut their positions are reversed—the salesman being the ne who is doing the pursuing.

There is, of course, a heavy backlog of orders. There s also a huge inventory of surplus machine tools still to e disposed of by the government. Russia, which has een a big buyer, soon will be making machine tools on erman designs. The United Kingdom is hard at it to upply its own needs in this field.

That means that 1947 is the year for salesmen to get ack to fundamental selling. They quickly must gain omplete knowledge of the models that are now being ffered by their own and by competing companies, nd understanding of just how these machines fit uyer's needs. They must have keen appreciation of he part their machines can play in helping the buyer to make more goods for more people at lower cost." he buyer now is boss. The salesman must know his acts to make a sale.

Today machine tools are selected for consistent op-rating economy; they are bought as investments in more roduction at lower cost. Designed and built to an un-ompromising "more-production" formula, they are com-lete with the most advanced operating features.

Higher wages have been made posible only because merican management has been able to invest in better achines that would make it possible for workmen to ake themselves worth by making more goods.

It has been 12 years since there has been a National achine Tool Show. Many executives and many salesmen ave never seen "the world's greatest machine shop." From eptember 17 through 26, in the Dodge-Chicago plant—he largest factory under one roof in the world—more han 294 American machine tool manufacturers will ow 2000 varieties of the "Master Tools of Industry."

More than 100,000 top executives of the metalworking ndustry of the world will observe in actual operation nore than 12-acres of machine tools, metalworking quipment and appliances.

Obviously, this will be the greatest "showcase" in the istory of our industry and the tools on display will set the pace for years to come in peacetime production. Therefore it will have tremendous appeal to men in production, purchasing, engineering and finance who are alive to the trends of the times.

But the Show also should prove a great re-vitalizing school for salesmen of American machine tools, both here and abroad. They will observe, at one place and at one time, the mammoth size of the industry. They will see their machines and those of their competitors in operation. They will meet, on a common ground of discovery and inspection, the buyers and the sellers of the entire industry. And they will learn that you have to know your product and your prospect in a buyer's market.

A return to an era of normal competition will be welcomed by all manufacturers and dealers who look beyond the mere filling of backlog orders through the pipeline to present customers. It will give them a chance to do some really creative selling in a market where profits come with value given.

Creative salesmanship which recognizes basic fundamentals of well-prepared proposals; well-developed analyses of specific needs of the buyer and well-grounded data on production and profit-making possibilities of machine tools, will have a great opportunity at this Show.

Potential buyers at the Show will be looking for those tools which will enable them to reduce cost of production, increase volume of production and return quickly a profit.

The manufacturer whose product and presentation best meets these requirements will find that the Show has been his own best answer to these "Three R's" of profitable business:

(1) Reduction of sales cost: By concentrating on the most likely of the contacts at the Show, the time of his salesmen can directed to the most fertile field.

(2) Reduction of production cost: By increasing volume on those types and designs which receive the verdict of acceptance at the Show, unit cost can be cut.

(3) Restoration of productivity: By supporting the basic and oldfashioned virtue of "Give more—get more", better machine tools will enable American workmen to produce more goods for more people" and our nation will benefit.

What users expect from NEW MODEL

IT is my purpose in this brief article to highlight some of the things which I have sound reasons to believe machine tool users will be looking for in the equipment which will be unveiled at the 1947 Machine Tool Show at the Dodge-Chicago plant. Not only do I believe that machine tool users will be looking for these things, but also I believe that they will find most of these features embodied in the new designs.

I express this as a reasonable certainty, rather than as mere wishful thinking, because my own experience as a machine tool user gives me considerable confidence in the willingness and ability of American machine tool builders today to tailor their designs to meet operational, economic and servicing situations which are met with in industries such as ours.

As in almost every field of engineering activity, two or more heads are better than one in ironing out difficulties in design. The machine tool industry is no exception. Within recent years machine tool builders—as never before in the history of their industry—have been getting around among users, have been getting their heads together with large users and with the electrical industry, with manufacturers of hydraulic equipment, etc., while new designs still are in the formative stages.

Examples of such co-operative enterprises are the Machine Tool Electrification Forums which have been held annually at Pittsburgh since 1936, and the Joint Conference between the machine tool builders and our own master mechanics and plant engineers which was held in Detroit in the spring of 1944.

The seven points which I now present are not necessarily in order of their importance to all machine tool users. As a matter of fact, they are in many respects of uniform importance—at least they are in our own case. In my presentation of them, it is my purpose to be constructive rather than critical—to encourage continued builder-user co-operation, not to stir up controversy.

1. Feeds and speeds must be of sufficient range to take full advantage of the cutting materials we have today and also allow for developments in the next few years. The rigidity of the machines must be such that full advantage may be taken of the feeds, speeds and power provided. Provision must be made for the elimination of vibration in the main machine structure and also from

The streamlined motor vehicles of tomorrow will be held within economic reach of the average buyer largely because improved machines, tools and methods introduced at the National Machine Tool Show will enable tooling and machining costs to counterbalance sharp increases in labor and materials

By HAROLD JOHNSON
Director, Process Development Section
General Motors Corp.
Detroit

MACHINES

ear trains which transmit power for feed and spindle tation. Also, the machines must be so arranged that ey will accommodate motors of sufficient power to meet oth present and future requirements.

2. Machines must be as simple as possible and all parts d accessories, such as electrical and hydraulic com-ponents, must be of the highest quality available and be cessible for maintenance, to minimize "down-time."

3. The problem of disposing of chips is increasingly itical and machine tools must be designed keeping is problem in mind. There is very little advantage in e purchase of machine tools which will allow the fast moval of metal and increase tool life if the machine ust be shut down frequently for the removal of chips. here are too many machines in use today in which the itput of the machine is restricted by the difficulty and e time consumed in removing chips.

4. The problem of loading and unloading machines ust be considered. As the time necessary to remove etal is reduced, the non-productive portion of the cycle hich includes loading, unloading and inspecting must e reduced proportionately. This problem quite often in-olves the design of fixtures but usually the machine tools emselves can be improved to facilitate the handling of ork in and out of the machine.

5. Machine tools must be designed so as to be con-enient and safe to operate. All new designs should be carefully studied in order to include the best possible location of all control levers, handles and push buttons in relation to the position and movement of an average operator. Also, all controls necessary for the operation of the machine should be placed so that they can be conveniently operated without reaching near moving parts.

6. Machine tools must be designed to make "good housekeeping" easy. Adequate splash and chip guards must be provided to protect the operator, the machine controls, ways, slides, bearings *and the floor.* This is important, not only from the standpoint of production but also for safety. In so far as possible, exterior surfaces should be flat and smooth and all ribbing and projections, particularly those used for appearance only, should be eliminated. The utility of the machine is far more important than "flossy" appearance, in our estimation.

7. Due to the increase in speed and power being used in many operations, many machine tools are now equipped with inadequate clutches which require frequent adjustment and replacement. This problem must be given considerable thought and it may be necessary to develop new methods for transmitting power.

As indicated in the first paragraph of this article, I will set out for the National Machine Tool Show with high expectations of seeing many new machine tools which not only come up to these specifications, but which in some cases actually go far beyond them.

Program 1947 MACHIN

Wednesday Evening, September 17, 1947

AMERICAN MACHINE TOOL DISTRIBUTORS' ASSN.

HOTEL LA SALLE .....Ballroom—Dinner 7:00 p.m.
Meeting 8:15 p.m.

Presiding:

GEORGE HABICHT, JR., *President of the Association* and *President,* Marshall & Huschart Machinery Co.

Presentation of certificates of honorary memberships to:

WILLIAM F. McCARTHY
J. ROY PORTER
J. W. WRIGHT
JOHN SAUER, JR.

Opening Remarks:

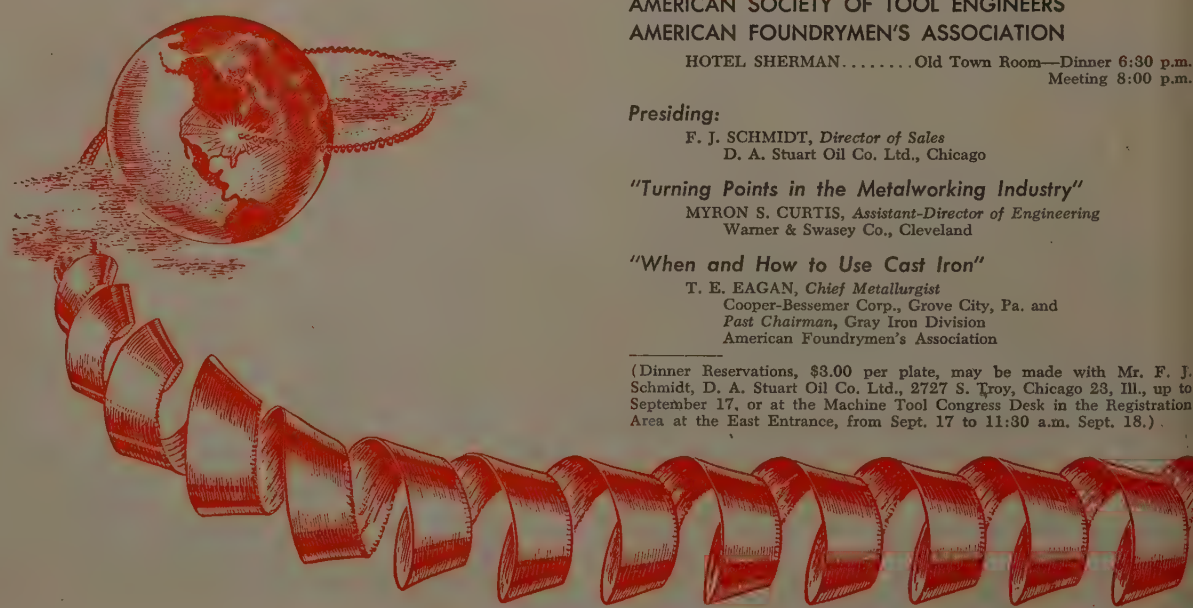
K. H. HOBBIE
President of the Machine Tool Congress and *Vice President,* Driver-Harris Co., Chicago

HERBERT H. PEASE
President, National Machine Tool Builders' Association, and *President,* New Britain Machine Co., New Britain, Conn.

"DEMOCRACY WITH A GUN IN HER RIBS"

FULTON LEWIS, JR., *News Commentator*
Washington

(Dinner tickets are on sale at $10 per plate through the American Machine Tool Distributors' Association, 505 Arch Street, Philadelphia 6, Pa., or at the Machine Tool Congress desk in the registration area of the show. Informal.)



Thursday Evening, September 18, 1947

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Production Engineering and Machine Design Divisions

CONTINENTAL HOTEL.....Tropical Room—Dinner 6:30 p.m.
Gothic Room—Meeting 8:00 p.m.

Presiding:

W. G. MILLER
Manager, Headquarters Manufacturing Department
Westinghouse Electric Corp., Pittsburgh

Recorder:

EDGAR D. VANCIL, *Manager, Engineering*
Cincinnati Milling Machine Co., Cincinnati

"FORM GRINDING"

J. I. WILSON
Thompson Grinder Co., Springfield, O.

"FABRICATED CONSTRUCTION IN MACHINE TOOLS"

J. F. LINCOLN, *President*
Lincoln Electric Co., Cleveland

(Reservations for the Dinner, at $5.00 per plate, through the Secretary, Machine Tool Congress, 10525 Carnegie Avenue, Cleveland, O., up to September 10; thereafter address Machine Tool Congress, c/o Dodge-Chicago Plant, 74th and Cicero Avenue, Chicago, Ill.)

Friday Evening, September 19, 1947

JOINT SESSION
AMERICAN SOCIETY OF TOOL ENGINEERS
AMERICAN FOUNDRYMEN'S ASSOCIATION

HOTEL SHERMAN.....Old Town Room—Dinner 6:30 p.m.
Meeting 8:00 p.m.

Presiding:

F. J. SCHMIDT, *Director of Sales*
D. A. Stuart Oil Co. Ltd., Chicago

"Turning Points in the Metalworking Industry"

MYRON S. CURTIS, *Assistant-Director of Engineering*
Warner & Swasey Co., Cleveland

"When and How to Use Cast Iron"

T. E. EAGAN, *Chief Metallurgist*
Cooper-Bessemer Corp., Grove City, Pa. and
Past Chairman, Gray Iron Division
American Foundrymen's Association

(Dinner Reservations, $3.00 per plate, may be made with Mr. F. J. Schmidt, D. A. Stuart Oil Co. Ltd., 2727 S. Troy, Chicago 23, Ill., up to September 17, or at the Machine Tool Congress Desk in the Registration Area at the East Entrance, from Sept. 17 to 11:30 a.m. Sept. 18.)

OOL CONGRESS

Monday Evening, September 22, 1947

NATIONAL ELECTRICAL MANUFACTURERS ASSN.

Motor and Generator, Industrial Control, Building Wire and Cable, Rubber Sheathed Cord and Cable, and Knife and Enclosed Switch Sections

PALMER HOUSE.....Ballroom—8:30 p.m.

Presiding:
R. STAFFORD EDWARDS, *President of the Association,* and *President,* Edwards & Co.

Speaker:
C. S. KETTERING, *Research Consultant*
General Motors Corp., Detroit

Tuesday Evening, September 23, 1947

CHICAGO TECHNICAL SOCIETIES COUNCIL

ELECTRIC ASSOCIATION.....Dinner 6:30 p.m.
38th FLOOR, CIVIC OPERA BLDG. Meeting 8:00 p.m.

Presiding:
DR. GUSTAV EGLOFF, *President of the Council,* and *Director of Research,* Universal Oil Products Co.

A Message of Welcome
KENNETH H. HOBBIE
President of the Machine Tool Congress
Past President of the Council, and
Vice President, Driver-Harris Co., Chicago

"Machine Tools and the Philosophy of Production"
GEORGE HABICHT, JR.
President, Marshall & Huschart Machinery Co. and
President, American Machine Tool Distributors' Assoc.

(Dinner tickets, $2.50 per plate, on sale through the Chicago Technical Societies Council, 53 W. Jackson Boulevard, Chicago 4, Ill., up to September 20, or at the Machine Tool Congress desk in the registration area of the Show from September 17.)

Wednesday Evening, September 24, 1947

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Production Engineering Division, and Special Research Committee on Metal Cutting Data and Bibliography

CONTINENTAL HOTEL.....Tropical Room—Dinner 6:30 p.m.
Boulevard Room—Meeting 8:00 p.m.

Presiding:
C. H. SIMMONS
Yarnell Waring Co., Chicago

"Practice and Theory in Carbide Milling"
MICHAEL FIELD
Cincinnati Milling Machine Co., Cincinnati

"Recent Developments in Carbide Application"
J. R. LONGWELL and FRED W. LUCHT
Carboloy Co., Detroit

(Reservations for the Dinner, at $5.00 per plate, may be mailed to the Dodge-Chicago Plant, Chicago, Ill., from September 10. Tickets will also be on sale at the Congress Desk until 11:30 a.m., Sept. 17.)

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Thursday Evening, September 25, 1947

SOCIETY OF AUTOMOTIVE ENGINEERS

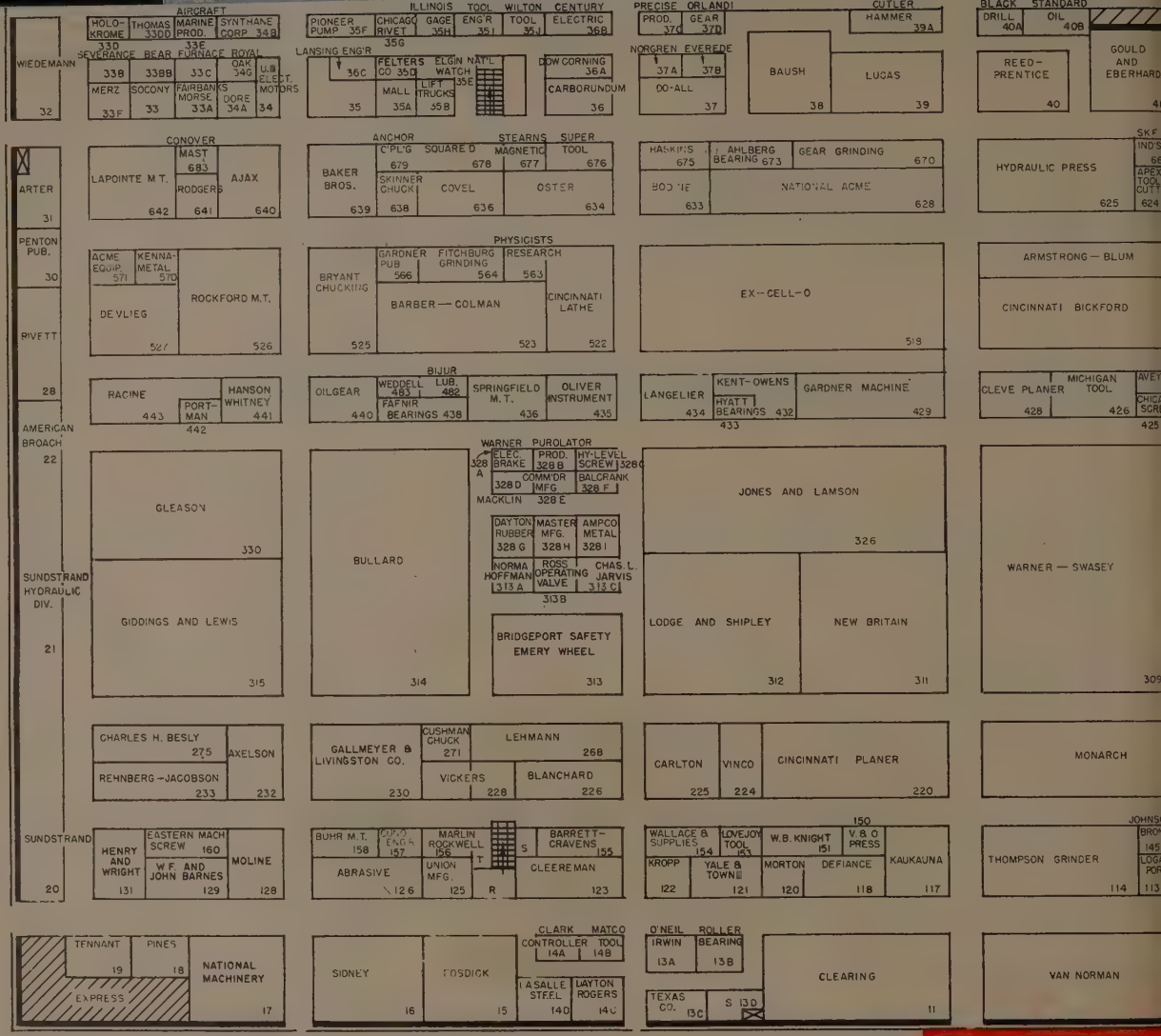
KNICKERBOCKER HOTEL .....Ballroom—7:30 p.m.

Toastmaster:
STEPHEN JOHNSON, JR.
SAE *Vice President for Production Activity,* and
Assistant Sales Manager,
Bendix Westinghouse Automotive Airbrake Co., Elyria, O.

Coffee Speaker:
C. E. FRUDDEN, SAE *President,* and
Consulting Engineer, Allis Chalmers Mfg. Co., Milwaukee

"A Trip Through the Machine Tool Show"
JOSEPH GESCHELIN, *Detroit Editor,* Automotive Industries, Detroit

(Dinner tickets on sale at $3.00 per plate, through the National Machine Tool Builders' Association, 10525 Carnegie Avenue, Cleveland 6, O.)



COMPANY	Booth NO.
Abrasive Machine Tool Co.	126
Acme Equipment Co. Inc.	571
Acme Industrial Co.	646
Ahlberg Bearing Co.	673
Aircraft-Marine Products Inc.	33 E
Ajax Mfg. Co.	640
Allegheny Ludlum Steel Corp.	645
Allen-Bradley Co.	237
Louis Allis Co.	143
American Broach & Machine Co. Div. of Sundstrand Machine Tool Co.	22
American Machine & Foundry Co.	47 B
American Machine Tool Distributors' Association	1 A
American Tool Works Co.	57
Ampco Metal Inc.	328 I
Anchor Coupling Co.	679
Anderson Bros. Mfg. Co.	317 I
F. E. Anderson Oil Co.	54 B
Anker-Holth Mfg. Co.	243
Apex Tool & Cutter Co. Inc.	624
Armstrong-Blum Mfg. Co.	550
Armstrong Bros. Tool Co.	406
Arrow-Hart & Hegeman Elec. Co.	602
Arter Grinding Machine Co.	31
Automatic Transportation Co.	52
Automotive Industries	449
Avey Drilling Machine Co.	467
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Barber-Colman Co.	523
Bardons & Oliver Inc.	49
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Charles H. Besly & Co.	275
Bijur Lubricating Corp.	482
Black Drill Co.	40 A
Blanchard Machine Co.	226
Bodine Corp.	633

COMPANY	Booth NO.
Boye & Emmes Machine Tool Co.	611
Bramson Publishing Co.	142
Bridgeport Safety Emery Wheel Co.	313
Bristol Co.	47 A
Brown & Sharpe Mfg. Co.	505
Bryant Chucking Grinder Co.	525
Buffalo Forge Co.	616
Buhr Machine Tool Co.	158
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Carboloy Co. Inc.	655
Carborundum Co.	36
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Chicago Drillet Corp.	649
Chicago Rivet & Machine Co.	35 G
Chicago Screw Co.	425
Chicago Wheel & Mfg. Co.	47 C
Cincinnati Bickford Tool Co.	514
Cincinnati Gilbert Machine Tool Co.	413
Cincinnati Lathe & Tool Co.	522
Cincinnati Milling Machine Co.	306
Cincinnati Planer Co.	220
Cincinnati Shaper Co.	417
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Covel Mfg. Co.	636
C. C. Craley Mfg. Co.	54 C
Cuno Engineering Corp.	157
Cushman Chuck Co.	271
Cutler-Hammer Inc.	39 A
Davenport Machine Tool Co. Inc.	531
Davis & Thompson Co.	201

COMPANY	Booth NO.
Dayton Rogers Mfg. Co.	14 C
Dayton Rubber Mfg. Co.	328 G
Defiance Machine Works Inc.	118
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Giddings & Lewis Machine Tool Co.	315
Gisholt Machine Co.	304
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Gleason Works	330
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COMPANY
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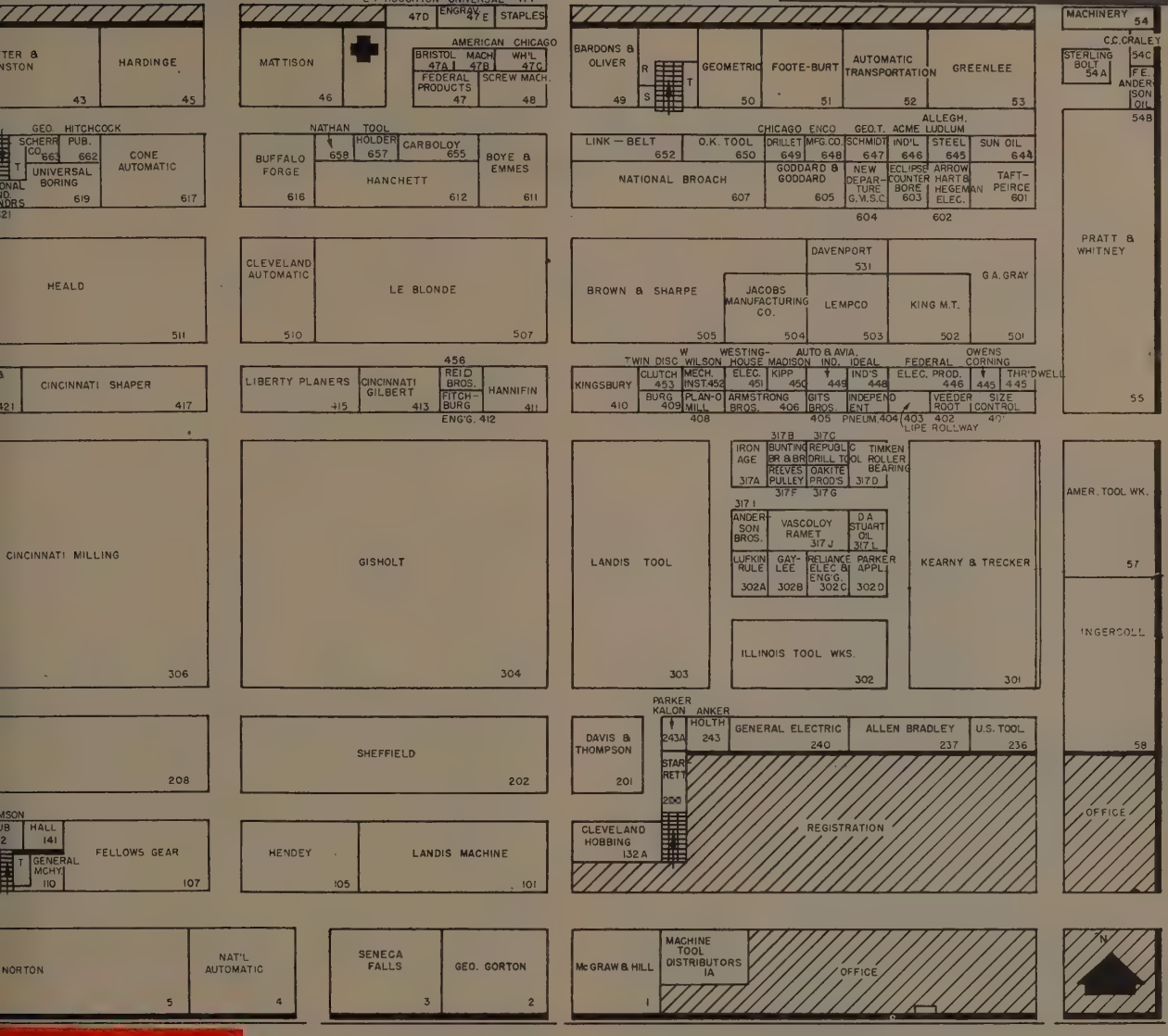
Gould & Eberhardt Inc.
G. A. Gray Co.
Greenlee Bros. & Co.
Hall Planetary Co.
Hanchett Mfg. Co.
Hannifin Corp.
Hanson-Whitney Machine Co.
Hardinge Brothers Inc.
R. G. Haskins Co.
Heald Machine Co.
Hendley Machine Co.
Henry & Wright Mfg. Co.
Hitchcock Publishing Co.
Holo-Krome Screw Corp.
E. F. Houghton & Co.
Hyatt Bearings Division General Motors Corp.
Hydraulic Press Mfg. Co.
Hy-Level Screw Products Co.
Ideal Industries Inc.
Illinois Gage Co.
Illinois Tool Works
Independent Pneumatic Tool Co.
Ingersoll Milling Machine Co.
Iron Age



PLAN

ept. 17-26, 1947

ge-Chicago Plant

COMPANY	Booth NO.
bs Mfg. Co.	504
s. L. Jarvis Co.	313 C
son Bronze Co.	145
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rney & Trecker Corp.	301
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-Owens Machine Co.	432
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p Forge Co.	122
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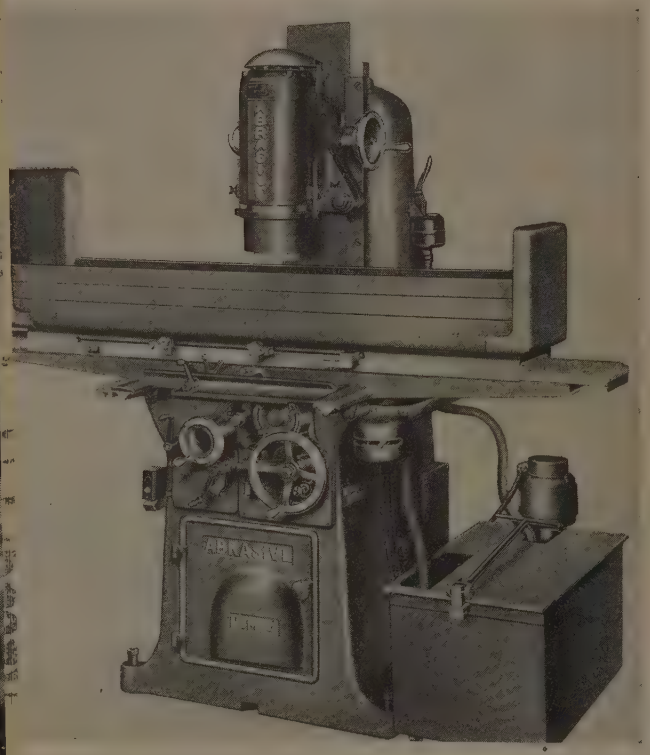
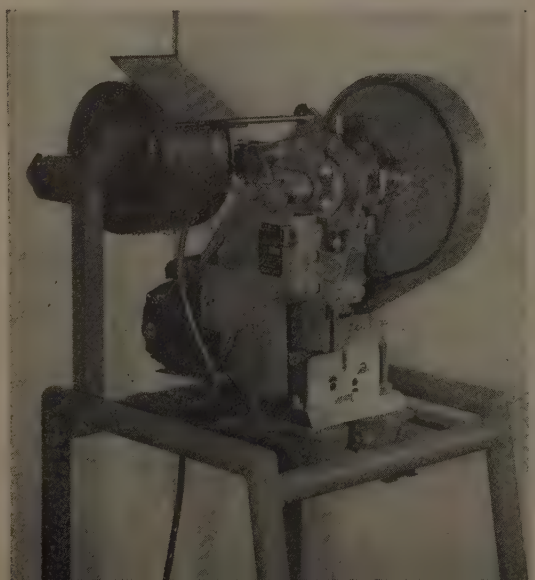
Wilton Tool Mfg. Co.	35 J
Yale & Towne Mfg. Co.	121

1947 MACHINE TOO

Abrasive Machine Tool Co., East Providence, R. I. . . Booth 126

To be demonstrated are precision horizontal spindle surface grinding machines, vertical spindle reciprocating table surface grinding machines, new graduating machine and multi-micro finishing machine for finishing straight and multi-angle holes in carbide bushings, gages, header dies etc. Shown here is Abrasive No. M34 vertical spindle surface grinder.





Acme Equipment Co. Inc., Chicago . . . . . Booth 571

A new, air-operated squaring shear will be shown, along with a foot-power model.

Acme Industrial Co., Chicago . . . . . Booth 646

Display will include drill jig bushings, dowel pins, leader pins and bushings, screw machine reamers, limit gages, examples of precision grinding and flat and cylindrical lapping.

Ahlberg Bearing Co., Chicago . . . . . Booth 673

Complete line of precision ball bearings, tapered roller bearings, cylindrical roller bearings and pillow blocks will be shown. A motor driven misaligned shaft mounted on pillow blocks will demonstrate internal self-cligning ball bearings.

Aircraft-Marine Products Inc., Harrisburg, Pa. . . . . Booth 33-E

Complete line of AMP solderless terminals and installation tools will be exhibited. The automatic wire terminator, below, left, utilizes a continuous strip of solderless terminals and a completely automatic crimping cycle. Machine achieves production speeds up to 3300 identical electrical connections per hour without special operating skill.

Ajax Manufacturing Co., Cleveland . . . . . Booth 640

Two-inch forging machine and 5-C high speed forging press will be exhibited. The latter machine has clutch mounted directly on main shaft, permitting somewhat faster operation.

Allegheny Ludlum Steel Corp., Pittsburgh . . . . . Booth 645

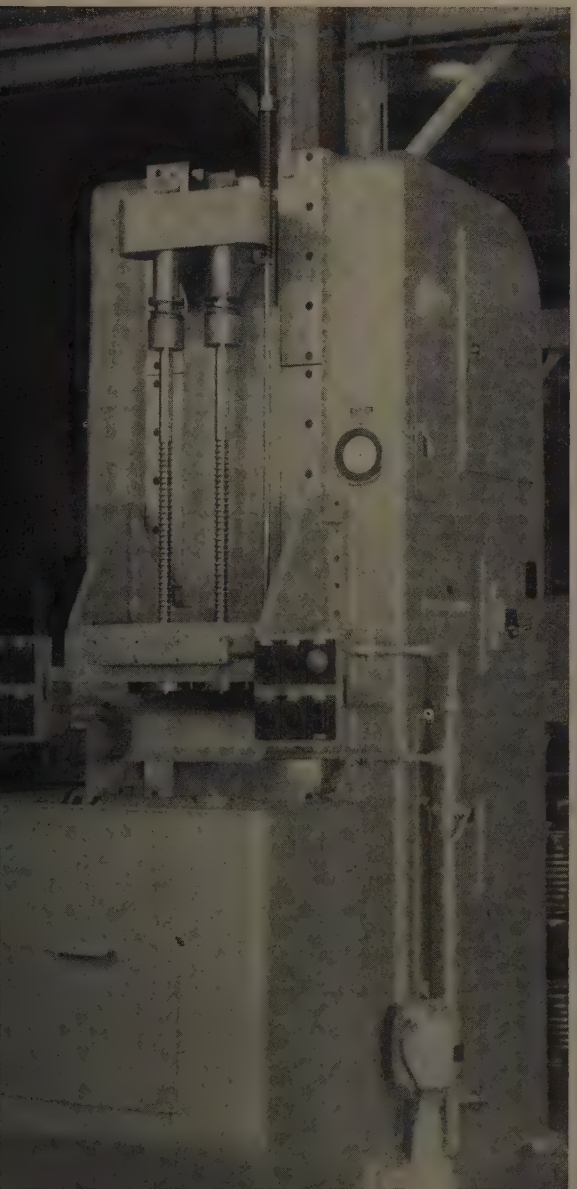
Tool steels and carbides, stainless and electrical steels are to be displayed.

SHOW Exhibitors

Allen Bradley Co., Milwaukee ..... Booth 237
Complete line of motor controls for machine tools will be exhibited. Alternating and direct current contactors, control relays, timing relays, magnetic and manual starters, and reversing switches, multispeed drum switches will be shown.

Louis Allis Co., Milwaukee ..... Booth 143
Electric motors suitable for machine tool use.

American Broach & Machine Co., Ann Arbor, Mich. . Booth 22
Division of Sundstrand Machine Tool Co.
Display will consist of vertical pull-up hydraulic broaching machine, vertical surface broaching machine, universal hydraulic broaching machines, horizontal broaching machine, hydraulic vertical press for assembly and push broaching.



The VP-4-20-36 two station vertical hydraulic broaching machine is shown below, left.

American Machine & Foundry Co., Brooklyn, N. Y. . . Booth 47 B
Automatic drill chucks and tapping attachments will be shown.

American Machine Tool Distributors' Association, Philadelphia ..... Booth 1-A

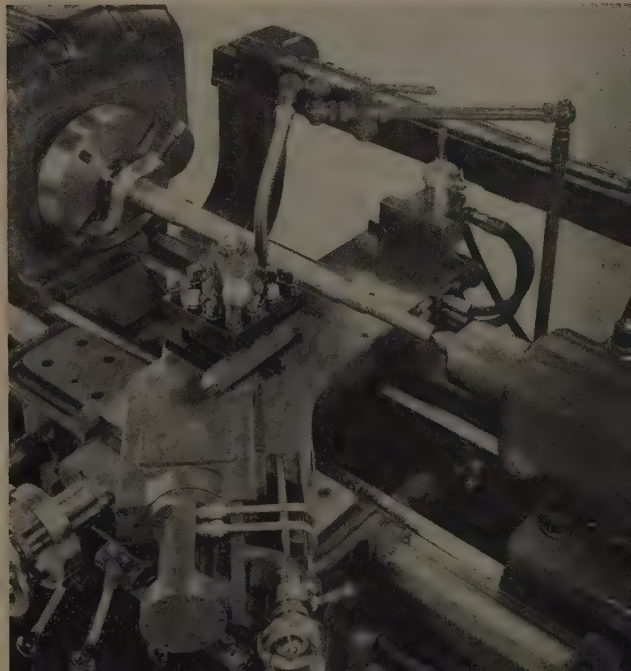
American Tool Works Co., Cincinnati ..... Booth 57
Three new machine models will be exhibited, including two new lathes and a radial drill. The 18 inch lathe, a new addition to the company's Pacemaker 5 foot 15 inch radial drill, features an arm elevating mechanism, incorporates automatic oiling principles. Sixteen-inch hydraulic shaft-duplicating lathe was developed primarily for rapid and accurate reproduction of circular shafts from a template.

Ampco Metal Inc., Milwaukee ..... Booth 328 I
Display will include sand and centrifugal castings, extruded bronze rod and tubes, continuous cast alloys and resistance and arc welding electrodes.

Anchor Coupling Co., Libertyville, Ill. ..... Booth 679
Two new products will be shown, a coupling for medium pressure hose with built-in swivel and a reusable coupling for medium pressure hose applications. Hydraulic hose assemblies for road building equipment, die casting machines, presses, etc. also will be shown.

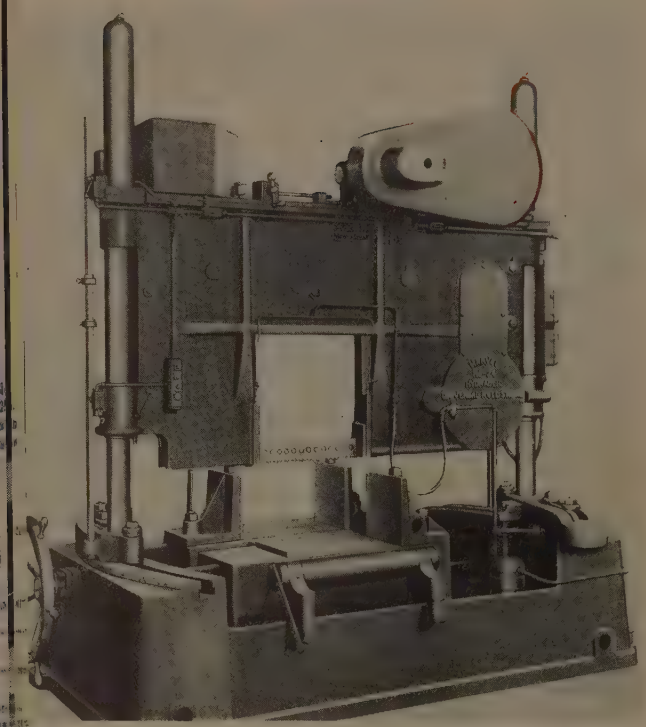
Anderson Brothers Mfg. Co., Rockford, Ill. ..... Booth 317 I
To be demonstrated are the model HP-02595-P traveling ram type straightening press, a power hydraulic straightening press, hand press, power scraper with turn table, balancing ways.

F. E. Anderson Oil Co., Portland, Conn. ..... Booth 54B
Machine tool coolants industrial cleaners, rust preventives.



1947 MACHINE TOOL SHOW

Exhibitors



Anker-Holth Mfg. Co., Port Huron, Mich. ..... Booth 243
Display will include air and hydraulic chucks, cylinders, valves and power units.

Apex Tool & Cutter Co. Inc., Shelton, Conn. ..... Booth 624
This company will display inserted tooth milling cutters, tool holders and bits, posts, boring bars etc.

Armstrong-Blum Mfg. Co., Chicago ..... Booth 550
Complete line of hack saw and band saw machines, including 16,000-pound reciprocating hack sawing machine, shown here, with 24 x 24-inch capacity will be displayed. Featured will be an entirely new band sawing machine, (No. 15) employing high speed steel endless band saw blade $1\frac{1}{2}$-inches wide, 0.072-inch thick, with widely spaced teeth.

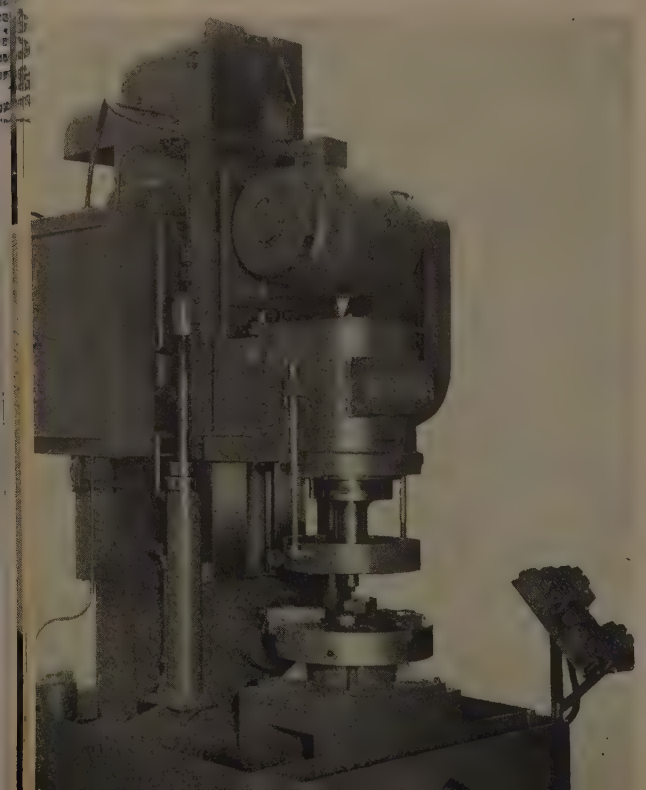
Armstrong Brothers Tool Co., Chicago ..... Booth 406
Machine tool accessories, wrenches etc. are to be displayed.

Arrow Hart & Hegeman Electric Co., Hartford, Conn. Booth 602
New magnetic starters will be featured, together with a push pull selector control switch, disconnect switches, grinder control panel and special small switches. Design of the magnetic starters stresses contact and terminal accessibility.

Arter Grinding Machine Co., Worcester, Mass. ..... Booth 31
Rotary surface grinders and an automatic cylindrical grinder are to be exhibited. The last named machine grinds automatically, on centers, such parts as bushings, valve stem guides, rolls, shafts, brake shoe cams and other cylindrical parts up to 5 inches in diameter and 5 inches long.

Automatic Transportation Co., Chicago ..... Booth 52
Electric industrial trucks.

Automotive Industries, Philadelphia ..... Booth 449
Publication.



Avey Drilling Machine Co., Cincinnati ..... Booth 467

On display will be drilling machines and cam feed units. Featured will be Avey Torque-matic deep hole drilling units set up on automatic transfer type machine for drilling crankshafts at rate of 75 per hour. Mechanical drill protector to prevent breakage, along with automatic drill dullness indicator will be exhibited.

Axelson Manufacturing Co., Los Angeles ..... Booth 232

Heavy duty engine lathes will be shown, these to include one 20 x 12 inch, 96-inch center distance machine completely equipped and in operation.

Baker Brothers Inc., Toledo ..... Booth 639

This company will exhibit drilling, boring, tapping and keyseating machines, and contour grinder. The model 60-HO-4 heavy duty vertical hydraulic feed drilling and boring machine, shown here, will demonstrate boring large diameter holes with carbide tipped multiple blade cutter head. Machine provides smooth transfer of power from 25 horsepower motor to a 6.299-inch diameter spindle by means of large enveloping cone-type worm and worm gear drive.

Balcrank Inc., Cincinnati ..... Booth 328 F

Lubrication equipment, auto tie rods.

Barber-Colman Co., Rockford, Ill. ..... Booth 523

Featured will be a new Barber-Colman automatic hob sharpening machine No. 6-5 and automatic hob shifter for the company's No. 8-10 vertical hobbing machine. Among the many new features of the former machine are: Interchangeability of grinding wheels for high speed carbide-tipped hobs, precise indexing with table cycle interlock, diamond dresser mechanism. Adaptable to wide range of work, machine handles 6 inch diameters and 5 inch lengths, and a minimum lead of 8.5471-inches, with a 40 degree sine bar setting.

Bardons & Oliver Inc., Cleveland ..... Booth 49

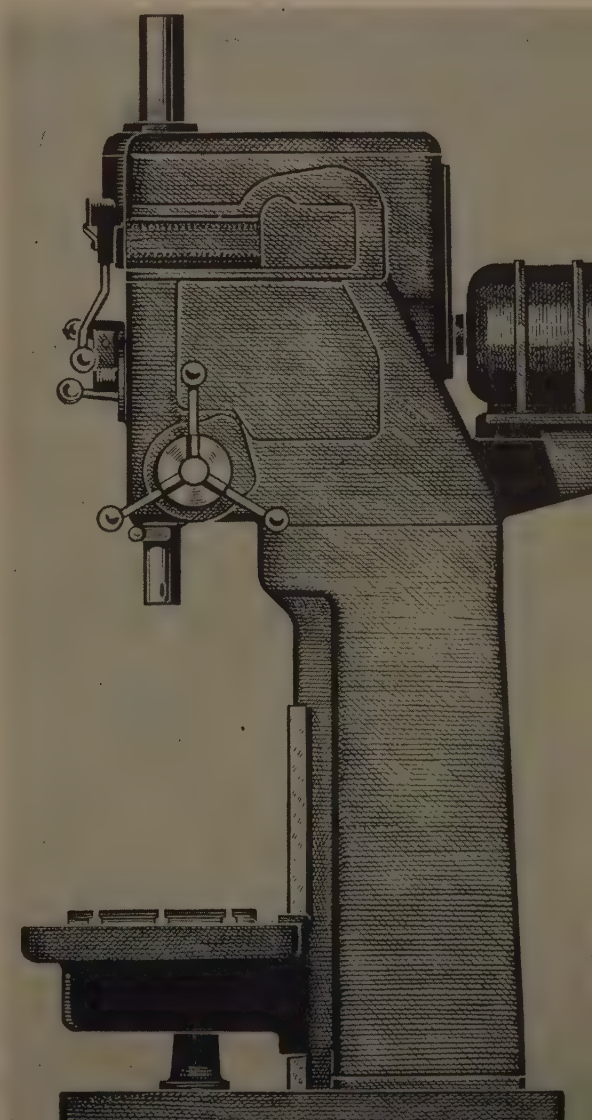
To be shown are turret lathes and a cutting off machine. Of the six working exhibits, the new No. 43A hydralectric automatic turret lathe will be featured. This is an entirely new machine. The new No. 2 geared electric turret lathe, lower left, is said to be the smallest machine of this type with full electric remote control.

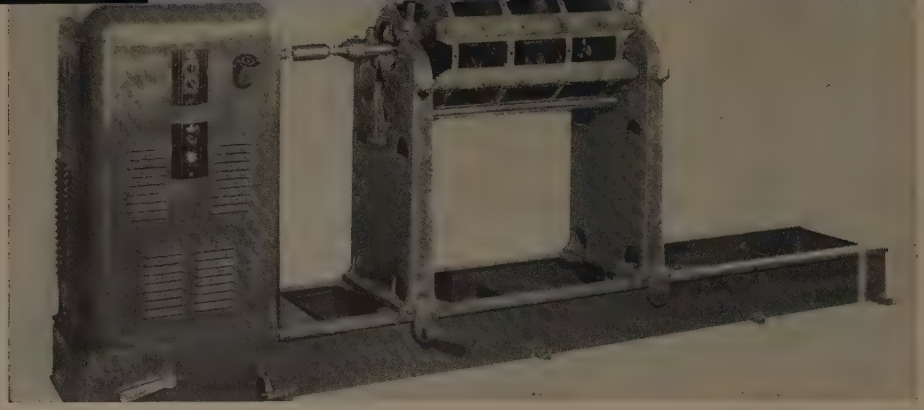
W. F. & John Barnes Co., Rockford, Ill. ..... Booth 129

Self-contained hydraulic drilling units used in conjunction with special production machines will be shown. The company makes special way type drilling, tapping, boring and milling machines, horizontal honing machines, horizontal boring and drilling machines, etc.

Barnes Drill Co., Rockford, Ill. ..... Booth 42

Featured will be a new mechanical drilling machine, shown here, which will have 12 speeds and 9 feeds selected by dial control, improved feed engagement control, wider range of speeds and feeds. Also to be exhibited are a new hydraulic unit, hydraulic honer, honing machines, magnetic coolant separator, special high production machine and 15 horsepower self-contained air-cooled units.





1967 MACHINE TOOL SHOW

Exhibitors

Barrett-Cravens Co., Chicago ..... Booth 155

Materials handling equipment will be shown, including the Tractor-Ox, latest addition to the line. Designed primarily as a tractor, the unit will pull tractor trains up to 20,000 pounds.

Baush Machine Tool Co., Springfield, Mass. ..... Booth 38

Exhibit will include multiple spindle drilling and tapping machines, hydraulic multiple-spindle drilling machines and transfer machines. The model 46 high speed multi driller and tapper, for small holes, uses flexible cable drive to each arm. Control of feed is by foot pedal.

Bear Mfg. Co., Rock Island, Ill. ..... Booth 33BB

This company will exhibit four different models of industrial dynamic balancing machines; demonstrating balancing of an automotive crankshaft, fractional horsepower armature, hammermill rotor and combine reel. Featured will be the No. 375 balancer, shown above.

Charles H. Besly & Co., Chicago ..... Booth 275

Full hydraulic wet grinders, double-spindle wet grinders, double vertical spindle wet and dry grinders, direct motor driven single spindle disk grinder, abrasive wheels and disks, and taps comprise exhibit.

Bijur Lubricating Corp., Long Island City, N. Y. ... Booth 482

All three main elements—lubricator, tubing, meter-units—of the Bijur central system of automatic metered lubrication will be on display. Small capacity constant feed gear pump is the company's newest product, providing 50 cubic centimeters per minute at 100 revolutions per minute.

Black Drill Co., Cleveland ..... Booth 40-A

Two drill presses will be in operation to show Hardsteel drills drilling through hardened files.

Blanchard Machine Co., Cambridge, Mass. ..... Booth 226

To be shown are Nos. 18 and 11 Blanchard rotary table, vertical spindle surface grinders, gap type demagnetizer, wheel mounter, segment chuck, instrument for measuring flatness of ground surfaces, abrasive wheels. Grinding to extremely fine finish and flatness will be done on the No. 11 grinder.

Bodine Corp., Bridgeport, Conn. ..... Booth 633

Exhibit will show dial type automatic drilling and tapping machine, drilling, tapping and screw inserting machine and hopper fed power screw driving machine.

Boye & Emmes Machine Tool Co., Cincinnati ..... Booth 611

The company's Golden Anniversary Model lathe is to be featured. This machine is designed to take advantage of tungsten carbide tooling. Gearing in the 16-speed headstock is heat treated and shaved to insure quiet operation and maximum efficiency.

Gear Box is provided with 64 feed and thread changes. Tailstock slide is a departure from conventional quill type with extra long bearing in base. Bed is of new design.

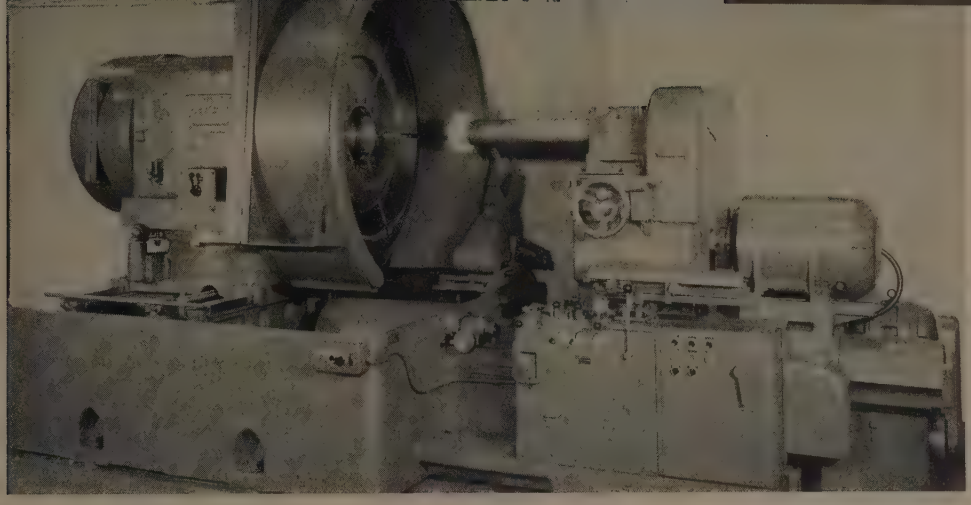
Bramson Publishing Co., Detroit ..... Booth 142

Publications.

Bridgeport Safety Emery Wheel Co.,

Bridgeport, Conn. ..... Booth 313

Two outstanding tools to be exhibited are the No. 103 vertical surface grinder and the No. 51 automatic cut-off machine. Completely hydraulic, the former has a reciprocating table 20 inches wide and 100 inches long; capable of speeds up to 200 feet per minute. Vertical movement of head is accomplished at 30 inches per minute. Hydraulic feed of cut-off wheel is important feature of the automatic hydraulic cut-off machine. This machine will handle stock up to 2 inches in diameter, and cut off lengths up to 12 feet.



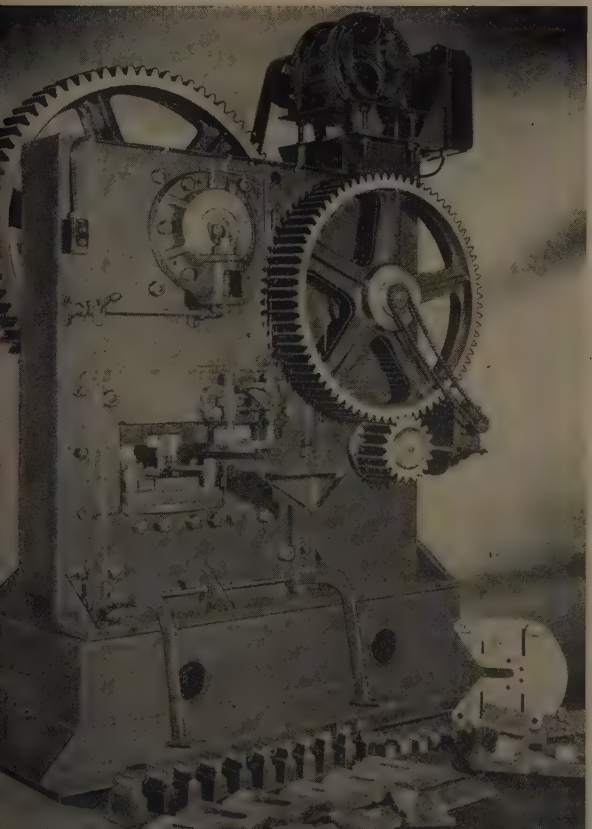
The Bristol Co., Waterbury, Conn. .....Booth 47 A
Two types of socket cap and set screws will be shown.

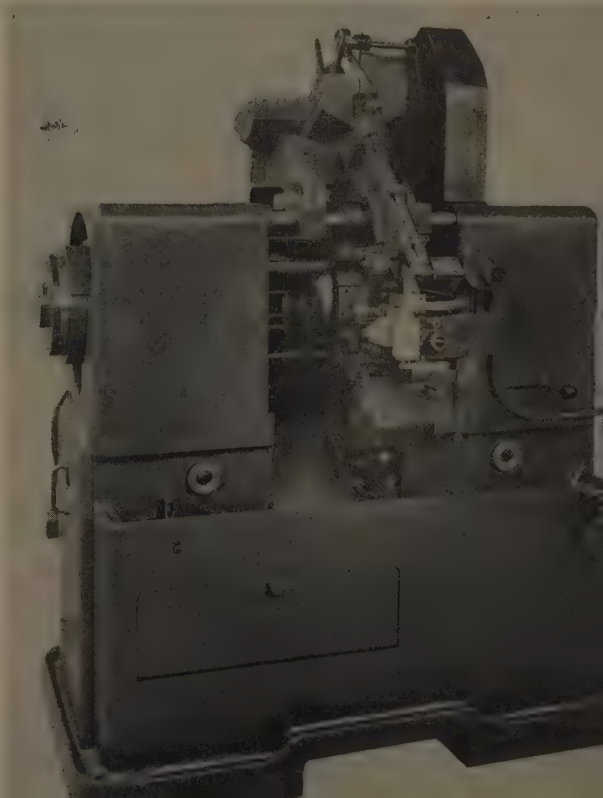
Brown & Sharpe Mfg. Co., Providence, R. I.....Booth 505
Comprehensive line of machine tools will be shown, including milling machines, grinding machines and screw machines, as well as attachments and incidental equipment such as arbors, collets and various screw machine tools. Machinists tools, measuring equipment cutting tools and other machine shop accessories will be included.

Bryant Chucking Grinder Co., Springfield, Vt.....Booth 525
This company will show a line of internal grinders for finishing holes from 0.040-inch in diameter to 36 inches. The No. 150, above, is the largest internal grinder built by Bryant. New features are fingertip control through hydraulic pressure, 60-inch face plate, workhead which swings for angular work.

Buffalo Forge Co., Buffalo, N. Y. .....Booth 616
One of three machines to be exhibited will be the Buffalo No. 9 locomotive spring punch and shear, below, left. This machine cuts 7 x ¾-inch steel. Other machines to be displayed are the RPMster drill and the OA bending roll for bending light sections into arcs, spirals or circles.

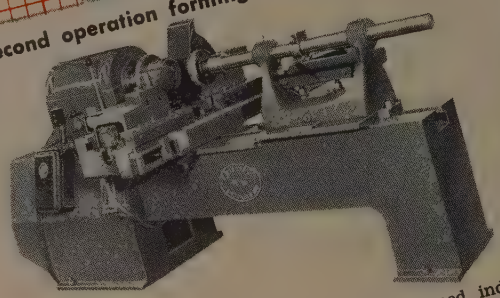
Buhr Machine Tool Co., Ann Arbor, Mich.....Booth 158
A Buhr-Matic hopper feed double-end drilling machine, shown below, will perform the operations of cross drilling, reaming and countersinking of the lacing holes on the hex head of a cap screw. A new bench type tapper also will be in operation. A cross section of the company's line of adjustable type multiple spindle heads will be on display, as well as several fixed center type multiple spindle drill heads.





BLISS AGAIN POINTS THE WAY TO

For second operation forming of press-drawn shells



NEW METAL SPINNING LATHE. With specially designed, independently operated hydraulic cross slide. Stroke and position controlled by adjustable dogs, eliminate operator fatigue. Adjustable speed and feed. Entire operation arranged in automatic cycle with push button starter. Fully enclosed transmission and combination friction-clutch and brake. Two sizes: bed lengths 69″ and 92″; chuck plate and tail plate, 18″ and 24″; speeds, 275, 365, 615, 1140 r.p.m. and 180, 370, 675, 1140 r.p.m.

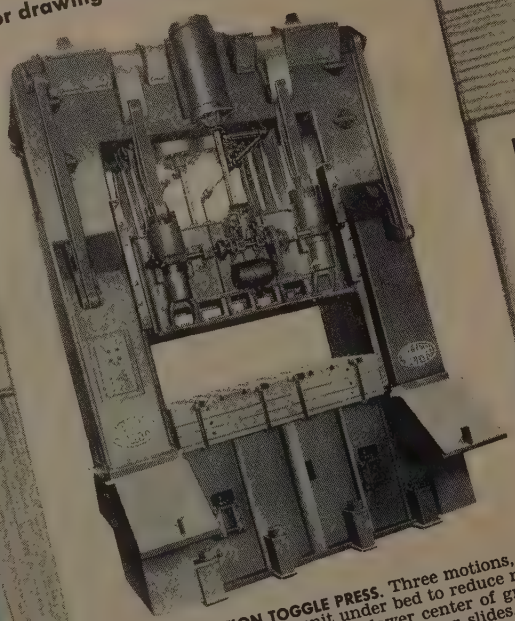
BLISS NO. 18 & NO. 16 SPINNING LATHES

For large, complex powder metal parts

NEW BRIQUETTING PRESS. Combines triple action lower motion—floating die table, core rod and stripper—built into 345-ton mechanical press. 10″ slide stroke can be adjusted to 5″. Speed of slide is adjustable from 6-9 spm and from 9-18 spm. Capacity: slide, 345 tons; die table, 120 tons; core rod, 60 tons; stripper (eject up), 75 tons; stroke of slide, 10″; die table, 3″; core rod, 3″; stripper 6″.

BLISS NO. 308 BRIQUETTING PRESS

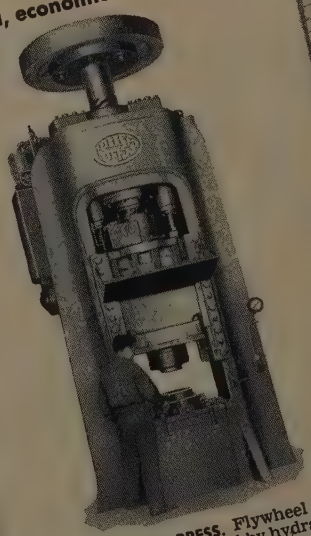
For drawing large automobile sections



NEW TRIPLE ACTION TOGGLE PRESS. Three motions, all driven by single power unit under bed to reduce machine's height above floor and lower center of gravity. Four point suspension on both upper slides. Presses of 400 tons and 700 tons capacity are available in several widths.

BLISS NO. 4TU PRESSES

For rapid, economical hot forgings



NEW HYDRO-SCREW PRESS. Flywheel at top of screw is brought up to speed by hydraulic pressure, and the accumulated energy developed delivers quick, hammerlike blows in rapid sequence and uniform in power. On a 16″ stroke under maximum power, machine cycle is completed in 3 seconds, start-to-return. Slide area FB X RL is 25″ x 27″; bed area FB X RL is 26″ x 29″. Flywheel speed is 115 r.p.m. with a K.E. of 21,000 ft. lbs. Available in 400, 600, and 1,000-tons capacity.

BLISS HYDRO-SCREW PRESS

Creates &

Bliss builds more types and sizes of presses than any other company

GREATER PRESSED METAL OUTPUT

Adds major engineering developments to long list of stamping equipment "Firsts"

Some of the power press innovations completed by Bliss during the past year are illustrated here. Many more are in process, including a line of high-speed notching presses which feature a new method of positive indexing to permit speeds up to 1200 strokes per minute. Another is a 200-ton all steel press brake, forerunner of a complete series which will introduce many new operating features.

The pioneering of advanced press equipment, such as those illustrated, is what you would expect from the world's largest builder of presses. At Bliss, advanced engineering and press design is a continuing process, to create and build new equipment that increases the productivity of operator and machine.

Whatever your pressed metal problem—mechanical or hydraulic—there's a Bliss press to solve it and a Bliss Sales Engineer to give you unbiased assistance.

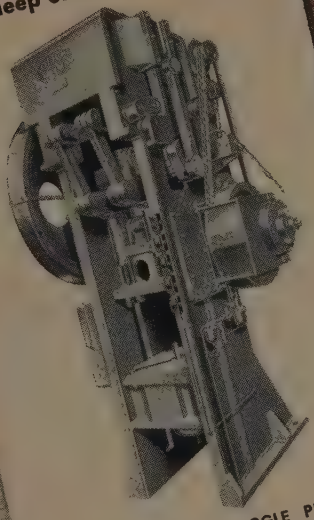
E. W. BLISS COMPANY, DETROIT 2, MICHIGAN

Mechanical and Hydraulic Presses, Rolling Mills, Can and Container Machinery

WORKS AT: Brooklyn, N. Y.; Toledo, Cleveland, Salem, Ohio; Hastings, Mich.; Derby, England; St. Ouen sur Seine, France
SALES OFFICES: Detroit; New York; Brooklyn; Cleveland, Dayton, Toledo, Ohio; Lansing, Mich.; Chicago; Philadelphia, Pittsburgh, Pa.; Rochester; New Haven; Boston; Windsor, Ont.

STAY AHEAD WITH Bliss

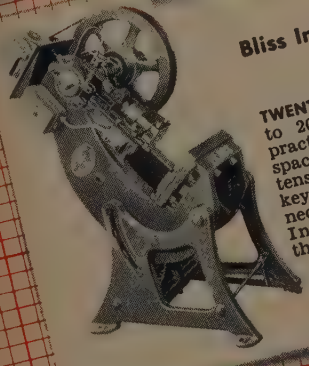
For deep or shallow drawing



NEW, SINGLE-CRANK TOGGLE PRESS LINE. In 8 sizes, ranging from 4½" x 7" shaft diameter and from 8½" to 24½" stroke length. Features new toggle drive which provides crosshead with long gibways at position most needed, reduces bearing overhang, renders greater accessibility. Includes new Bliss single disc pneumatic friction clutch, direct-connected liftout in bed, steel gearing throughout and Bliss manifold lubrication system.

BLISS SINGLE-CRANK TOGGLE PRESSES

Bliss Inclinable Presses



TWENTY STANDARD SIZES, 10 to 200 tons. Available in practically any stroke, die space. Feature rugged high tensile alloy castings, rolling key clutch, plug type connection. Over 50,000 Bliss Inclinables are in use throughout industry.

BLISS INCLINABLES

Bliss High-Speed Hydro-Dynamic Presses

COMPLETELY SELF-CONTAINED; 15 tons to 5,000 tons; open rod and housing types; single action, double action, triple action. Feature quick advance and return speeds, controlled pressures throughout full length of stroke, automatic overload devices, simple settings and adjustments, Bliss patented hydraulic circuit.

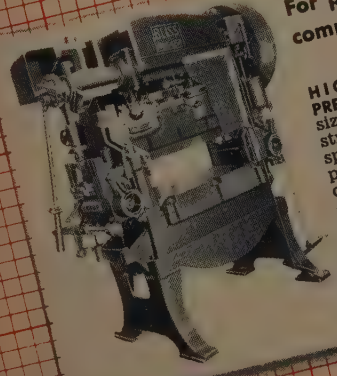
BLISS HYDRO-DYNAMIC PRESSES

Bliss Enclosed Type Presses

IN ALL TYPES AND SIZES designed to utilize minimum floor space and reduce operator fatigue. Embody many safety features.

BLISS ENCLOSED PRESS

For progressive and compound die work



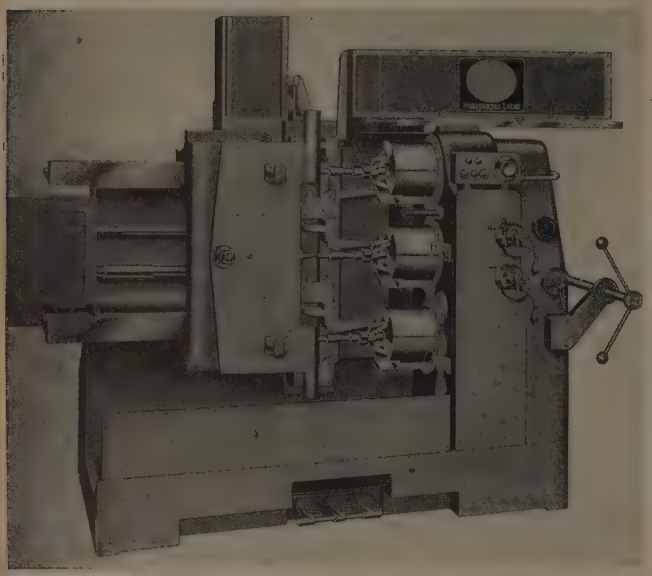
HIGH PRODUCTION PRESSES. In 17 standard sizes, 8 tons to 350 tons; strokes from ¼" to 10"; speeds up to 1200 strokes per minute. Feature eccentric shafts, supported close to pins in deep crown; heavy-four-piece steel tie rod frame construction, square gibbing, bronze liners, high speed friction type feed.

BLISS HIGH PRODUCTION PRESSES

WON'T YOU DROP IN ON US...

at our office in the Palmolive Bldg. in Chicago while you're visiting the Machine Tool Show? Our Sales Engineers will be on hand to tell you more about "What's New" at Bliss and to assist you with your production problems.

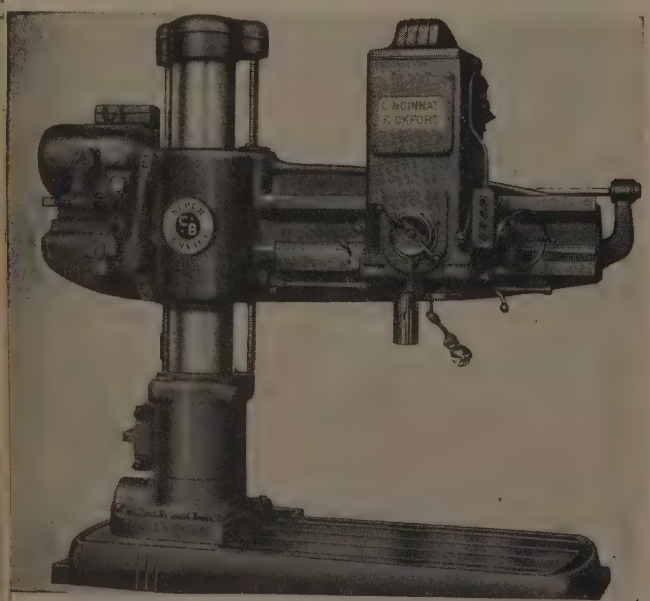
Exhibitors



The Bullard Co., Bridgeport, Conn. .....Booth 314
Among the six machine tools to be exhibited will be a three-spindle horizontal lathe, which introduces a new principle in shaft turning; it is operated automatically through 39 different functions by Bullard Man-Au-Trol control at spindle speeds up to 1200 revolutions per minute. Sixteen feeds from 0.0003 to 0.0156, with 40 speeds from 50 to 1200 revolutions per minute are available on the 20,000-pound machine. Type K Mult-Au-Matic, also to be demonstrated is a high-speed development of the standard multiple-spindle machine tool.

Bunting Brass & Bronze Co., Toledo.....Booth 31 B
Exhibit will feature wide variety of cast bronze bearings, both standard and special.

Burg Tool Mfg. Co., Los Angeles .....Booth 409
Entire line of 38 different types of tool holders will be shown. Included are non-releasing sliding tap holders for automatic machines, quick change floating holders and a special holder for small drill presses. Floating holders have neoprene inserts.



Carboloy Co. Inc., Detroit .....Booth 655
Many types of carbide products will be shown, these to include solid carbide boring bars, standard shapes of carbides, sheet metal dies and punches with carbide nibs and segments, wheel dressers, carbide rods, carbide tipped lathe centers, bushings, milling blades, balls, twist drill tips etc. Latest carbide tool grinding techniques will be demonstrated. Model tool grinding department will provide free grinding service on all carbide single-point tools in use at the show.

Carborundum Co., Niagara Falls, N. Y. .....Booth 36
"Series 20" grinding wheel will be featured. This product is a completely new type of ceramic or vitrified bonded grinding wheel in which new type abrasive grain is used.

Carlton Machine Tool Co., Cincinnati .....Booth 225
Carlton radial drills will be exhibited.

Century Electric Co., St. Louis .....Booth 36 B
On display will be a new design of flange machine tool motor, plus fractional and integral horsepower motors for every known machine tool and factory equipment application. Included will be both single and polyphase types.

Chicago Drillet Corp., Chicago .....Booth 649
Four-position drilling and tapping turret head for drill presses will be demonstrated in conjunction with a six sided leaf type jig and a new speed changer. The jig is said to cut tooling costs as much as 75 per cent. The speed changer may be attached to any drill press.

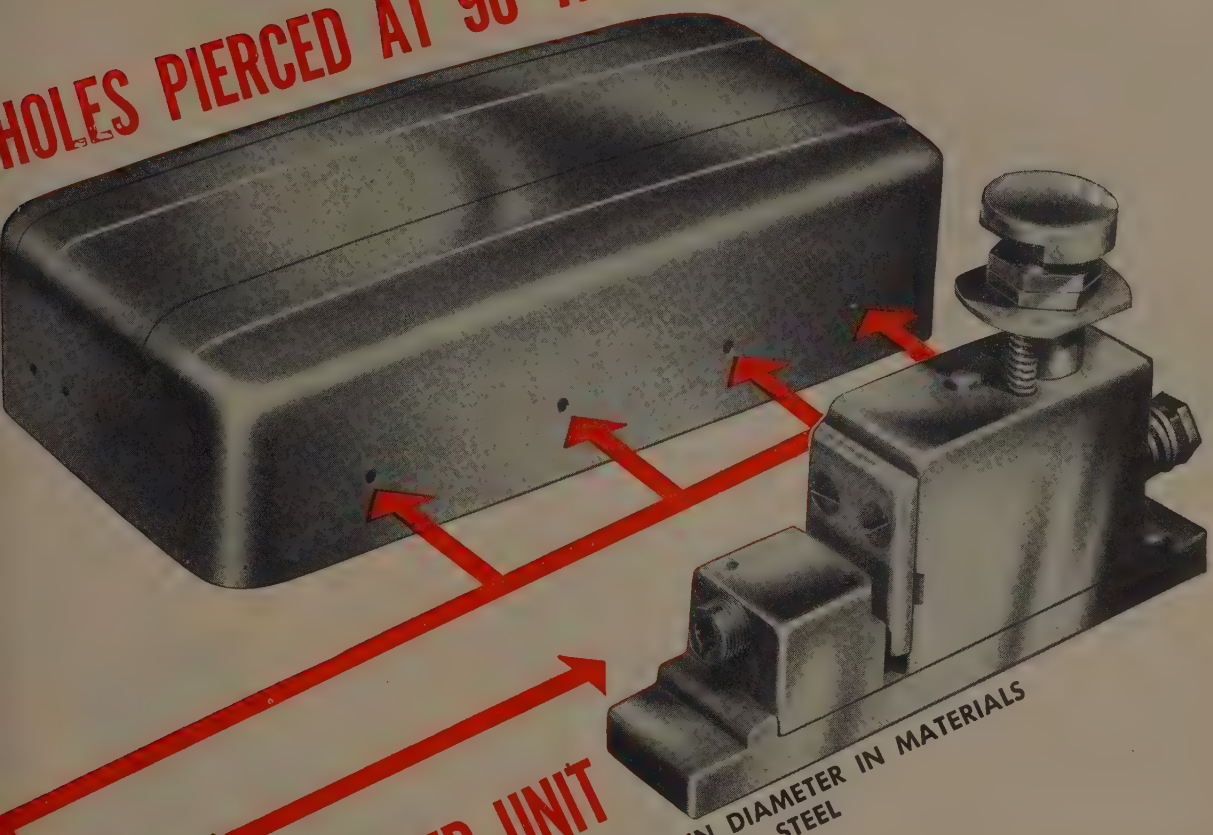
Chicago Rivet & Machine Co., Chicago .....Booth 35 G
Tubular and split rivets, plus automatic rivet setting equipment will be shown.

Chicago Screw Co., Chicago .....Booth 425
Special, hardened and ground screw machine parts, cast iron and steel valve tappets and screw machine assemblies will be shown in addition to socket screws and other types of fasteners.

Chicago Wheel & Mfg. Co., Chicago .....Booth 47 C
Metallic sheathed grinding wheel of the vitrified or ceramic bond will be shown in operation for the first time.

Cincinnati Bickford Tool Co., Cincinnati .....Booth 514
Display will consist of the Super Service radial drilling machine, two types of upright drilling machines and special equipment including a jig boring machine, portable horizontal drilling machine, precision drilling machine. The radial drilling machine, shown here, has an 11-inch diameter column hydraulic arm and column clamp, 12 speeds and six feeds with all controls centrally located in the head.

HOLES PIERCED AT 90° ANGLE...

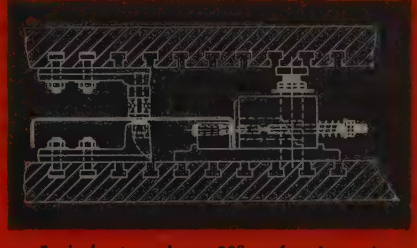


with NEW WHISTLER UNIT

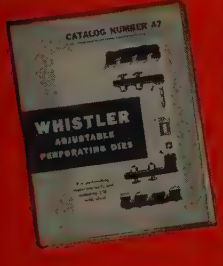
PERFORATES HOLES UP TO 1/2" IN DIAMETER IN MATERIALS TO 1/16" THICK MILD STEEL

See us at Booth 301 National Metals Show, Chicago, October 18th to 24th

Detailed drawing showing operation of HU-50 90° Perforating Unit.



Typical set-up shows 90° perforating unit operated in conjunction with standard perforating equipment.



Extruded shapes, ells, angles and other molded, shaped or fabricated pieces are easily pierced from the side at 90° with HU-50 Perforating Units. Quickly set up and adjustable, these units may be used separately or with standard perforating equipment. The advantages provided by other Whistler Adjustable Dies are retained. Absolute accuracy is assured. Quick change-over of hole arrangements can be made in many cases, on the press. Production economies and speeded up operating schedules are effected. Continued re-use of units in different groupings spreads initial cost.

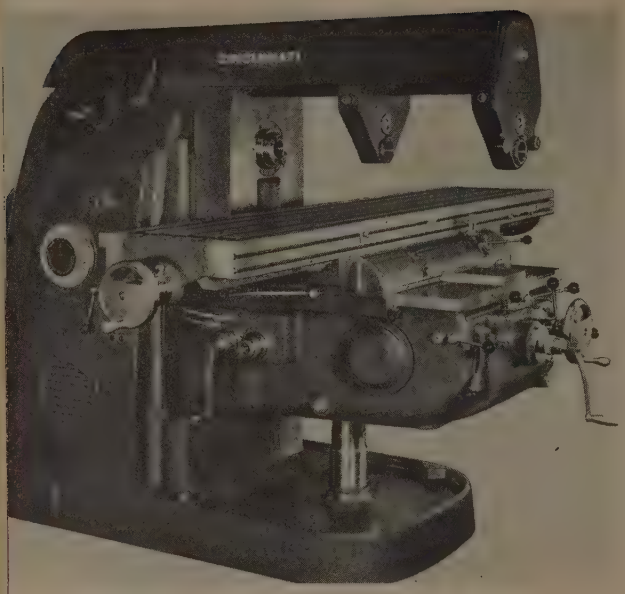
It makes sense to look into the use of Whistler Adjustable Dies for all perforating, notching, slitting or rounding operations.

DETAILS EXPLAINED IN CATALOG NO. 47

Get the facts about this 90° perforating unit in a hurry. Your copy of this catalog will be sent at once upon request.

S. B. WHISTLER & SONS, INC.

756 MILITARY ROAD BUFFALO 17, NEW YORK



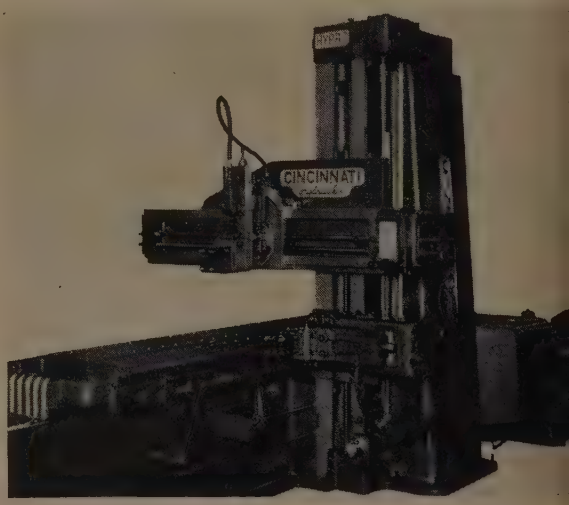
Cincinnati Gilbert Machine Tool Co., Cincinnati . . . Booth 413
Radial drills, horizontal boring machines.

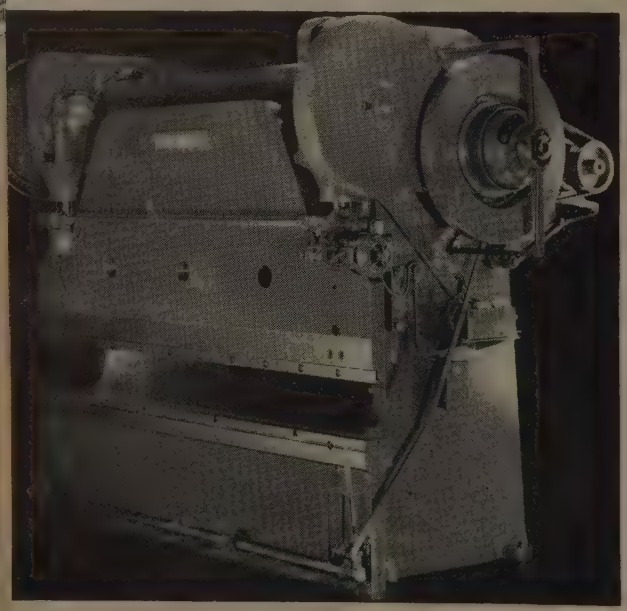
Cincinnati Lathe & Tool Co., Oakley, Cincinnati . . . Booth 522
Group of seven machines will be in operation, including the completely new Tray-Top, Contourmatic and Tracermatic lines of lathes. The Traytop Cintilathe is a light motor-driven geared head engine lathe, made in four nominal swing sizes: 10, 12½, 15 and 18 inches, designed to handle a wide variety of turning, boring and threading operations either for long or short run lots.

Cincinnati Milling Machine Co., Cincinnati . . . . . Booth 306
. . . . . Booth 306
Some 48 machines will be shown, including milling, milling and die sinking, automatic milling machines; broaching, cutter sharpening and grinding and lapping machines. A new line of knee-and-column type milling machines, known as dual power and high power dial types, will be featured. These machines, one of which is shown here, are designed for shops requiring ample power for taking heavy cuts on large work.

High power dial types, in plain, universal and vertical styles, are driven by 25 horsepower motors. Dual power machines are driven by 40 94 50 horsepower motors. Twenty-four spindle speeds, 14 to 1400 revolutions per minute and 32 feeds, ¼ to 60 inches per minute are available.

Cincinnati Planer Co., Cincinnati . . . . . Booth 220
Among machines to be shown are vertical boring and turning mill, planer type milling machine with electronic head and table drives, double housing planer and a 30 in. x 8 ft. hydraulic openside planer. This planer, a completely new machine just added to the Cincinnati line, was developed for the small planer field. It is driven by a new type hydraulic unit with finger tip remote control for infinite adjustment of table speeds. Hydraulic feed mechanism, hydraulic tool lifters and other features will be demonstrated.



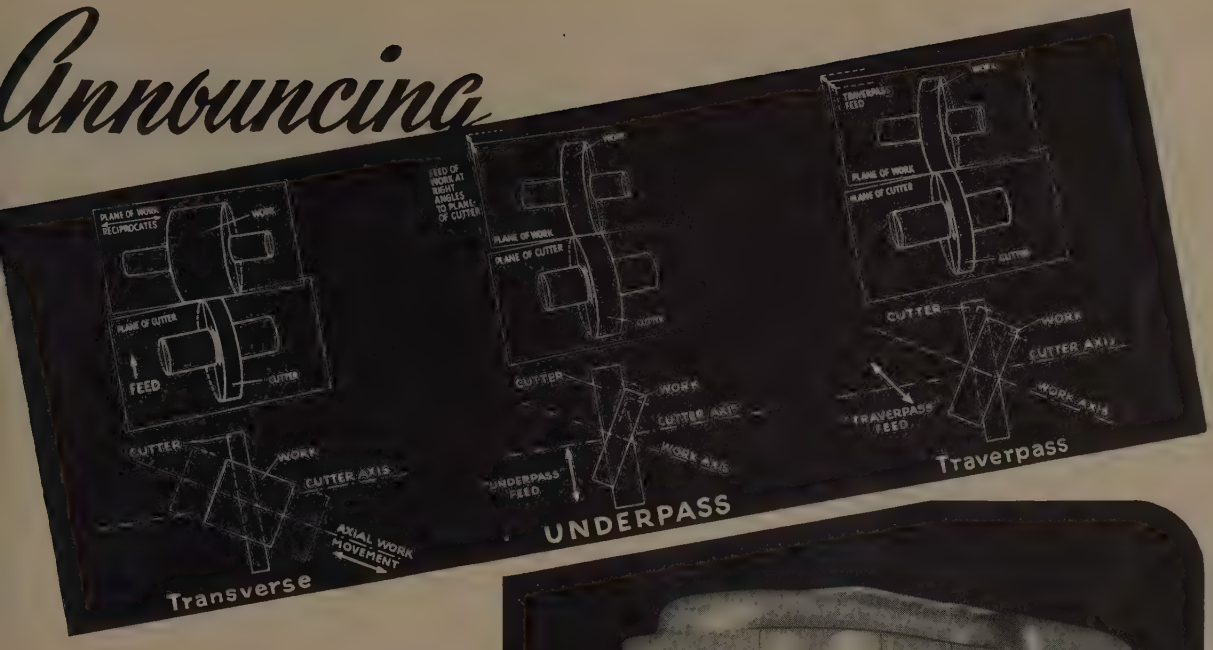


Cincinnati Shaper Co., Cincinnati . . . . . Booth 417
Exhibit will include shapers, press brakes and shears in action. The 130 series press brakes are equipped with combination manual and air clutch, tonnage indicator, two-speed transmission, bed and ram extension which can be used for honing operations, auxiliary angles for press work. Interesting multi-operation job will be demonstrated on the machine. This combines notching, crimping, rolling and bending operations in progressive steps.

Clark Controller Co., Cleveland . . . . . Booth 14 A
Exhibit will consist of two specially built machine tool electrical control panels, plus motor starters, contactors, relay switches and other standard accessories. Another panel with a contactor operating an air valve, and timed with an electronic timer will be in operation.

Clearing Machine Corp., Chicago . . . . . Booth 1
Straight side double crank press, 175-ton Clearing press double action hydraulic press, Non-Flex presses, press drive assembly, triple action press will comprise the exhibit.

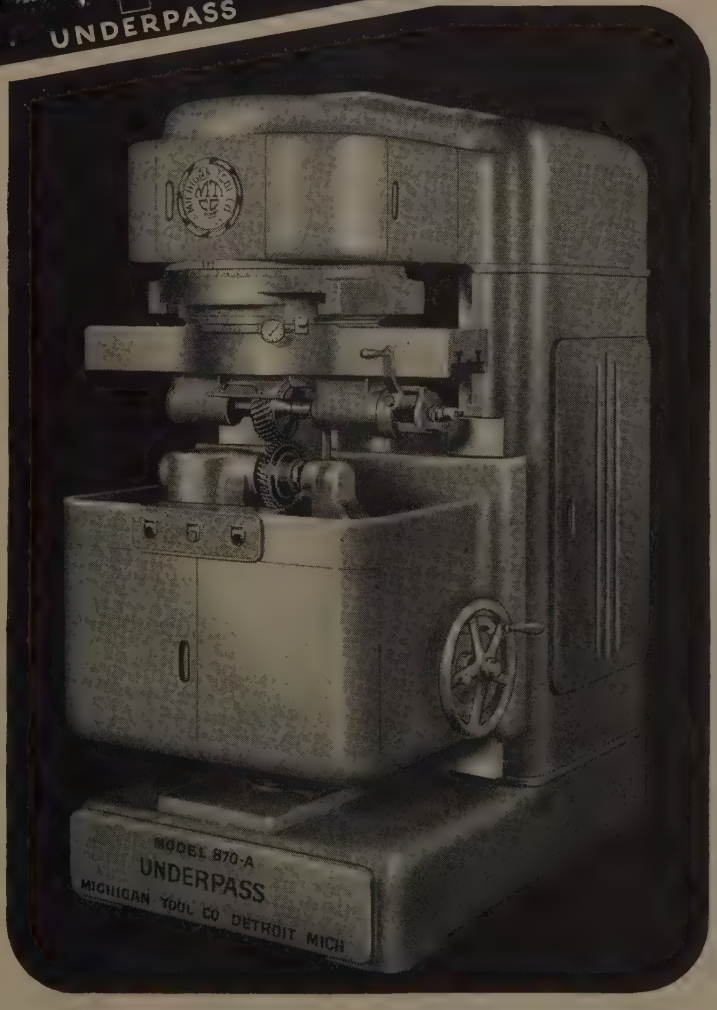
Announcing



the New 3-Way

MICHIGAN 870-A UNDERPASS

Gear Finisher



The new Michigan 870-A Gear Finisher not only brings UNDERPASS GEAR FINISHING to a new peak of accuracy, efficiency and speed (12 to 55 seconds, depending on the gear), but also makes available *in the same machine* two other pre-selective methods of gear finishing:

"Transverse" shaving for extremely wide face gears and splines and

"Traverpass" shaving for finishing fairly wide gears with narrow cutters (faster than "Transverse", although not as fast as "Underpass").

Also available (Model 870) without the vertical feed used with the transverse shaving process.

FASTER LOADING AND UNLOADING:

Quick acting camlock tailstock; work always located *above* cutter; self-clearing "over-center" machine guard.

FASTER SET-UP:

Merely rotate head-slide to select type of finishing method desired; all electric cycle controls in "sealed" dust-protecting compartment.

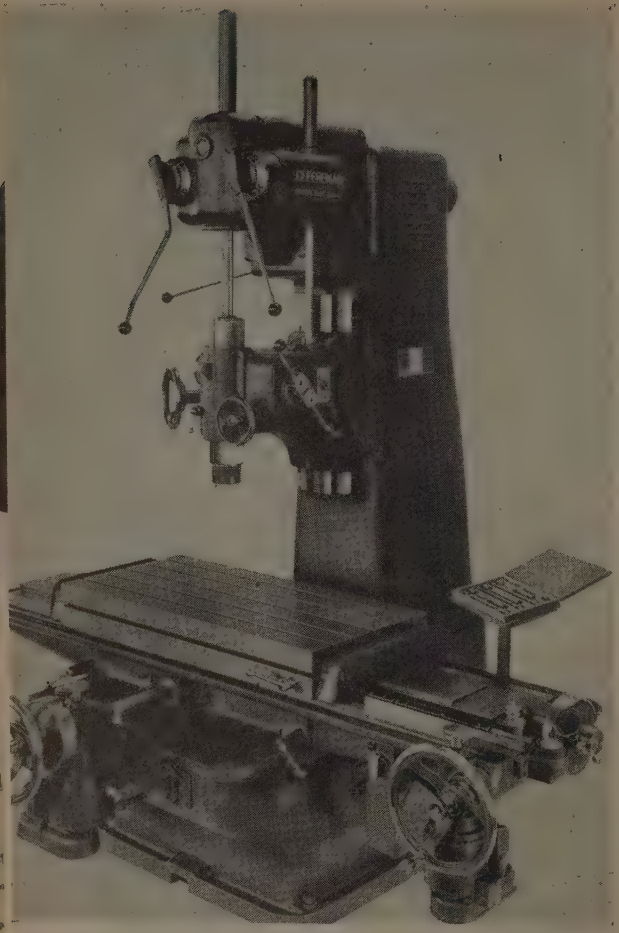
SMOOTHER OPERATION:

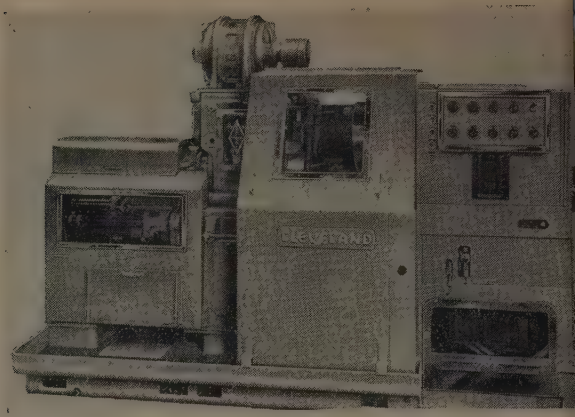
Head slide operated through Cone-Drive gearing (more teeth in contact—more contact per tooth).

See it at the Machine Tool Show: Booth 426, or write for Bulletin No. 870A47

MICHIGAN TOOL COMPANY

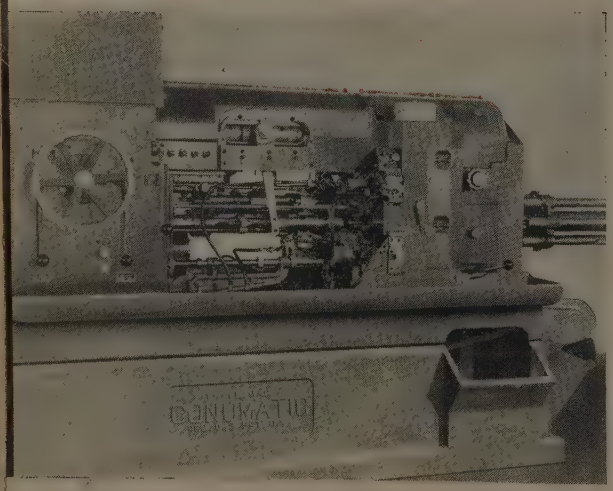
7171 E. McNICHOLS ROAD DETROIT 12, U.S.A.





1947 MACHINE TOOL SHOW

Exhibitors



Cleereman Machine Tool Co., Chicago ..... **Booth 123**

Exhibit includes a working installation of Cleereman round column and box column high speed, heavy duty drilling machines, upright drilling machines and precision jig borers. The new electronic control jig borer, shown here, will be notable in the display. Power drive has been added to the table by means of electronically controlled motors to provide prepositioning control, power traverse and full range of milling feeds.

Cleveland Automatic Machine Co., Cincinnati .... **Booth 510**

New hydraulic die casting machine, electric drive automatic turret machine will be featured. The new 2½-inch single spindle automatic turret machine, known as the Dialmatic Cleveland model AB, is shown here. Electric tool feed drive makes independent, infinitely variable forward and return tool feeds possible, without cam changes, for each of five tool positions in the turret head.

Cleveland Hobbing Machine Co., Cleveland ..... **Booth 132 A**

Gear cutting machines.

The Cleveland Planer, Cleveland ..... **Booth 428**

Planers.

Commander Manufacturing Co., Chicago ..... **Booth 328 E**

Multiple-spindle drilling heads, featuring a new 8-spindle 900 Multi-Drill will be displayed. This equipment, attached to any drill press, will drill eight holes at one stroke in any hole pattern or within a 9-inch circle, minimum center distance ½-inch. Positioning spindles to any hole pattern is accomplished by loosening one nut on each of the eight locating arms, positioning spindle and tightening nut.

Cone Automatic Machine Co. Inc., Windsor, Vt. .... **Booth 617**

New 1-in. bar machine, 6 spindle Conomatic will produce two mating parts in one machining cycle utilizing 25 tools and six attachments. This machine marks Cone's entrance into the faster spindle speed field.

A 5-in., 4 spindle and a 2⅝-in., 6 spindle Conomatic will provide interesting demonstrations of chip removal with carbide tools in producing compound gear blanks and bearing races. A new multiple spindle 1⅝-in. bar machine, called "Multi-Single", will demonstrate accurate volume production of pieces requiring few machining operations.

Conover-Mast Corp., New York ..... **Booth 683**

Publications.

Consolidated Machine Tool Corp., Rochester, N. Y. .... **Booth 423**

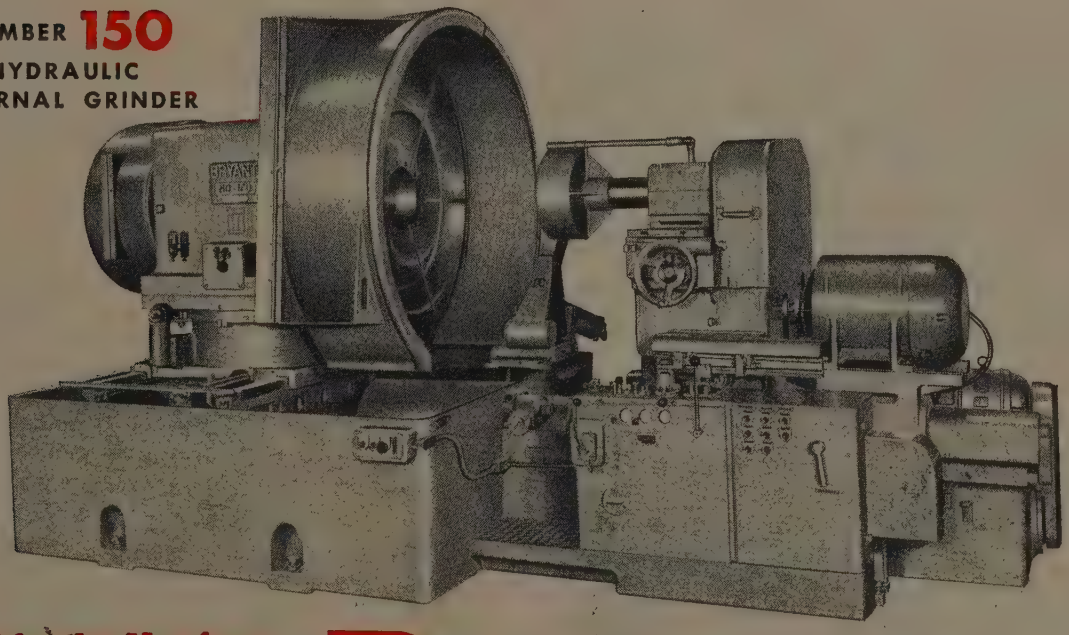
Builders of heavy duty machine tools and plate shop equipment.

Behemoth Bigness
with a "Tiffany Touch!"

The Bryant No. 150 vastly increases the scope of precision internal grinding. With this rugged machine, you may now grind parts up to 60 inches in diameter with a maximum hole depth of 16 inches. In spite of its size, the No. 150 is a precision production machine with "finger-tip" control. Positive alignment is assured by the use of the well-known Bryant 3-point wheel slide suspension. A preloaded anti-friction cross slide gives smooth cross-feed—either by hand or power. A hydraulically operated wheel slide simplifies gaging and loading and unloading of large work pieces.

In a single chucking, the new No. 150 can grind a bore, or a bore and face—the bore may be either straight or tapered. Hardened and ground slides give the work head 24 inch movement axially and crosswise to simplify finishing long work or large diameter work. Outside diameters, or outside diameters and faces can also be finished in one chucking. Spacer blocks can be inserted between the cross-feed screw and the cross slide to obtain a second setting for a counterbore or face grinding operation. A copy of Bryant No. 150 catalog sheet, giving full details, is yours for the asking.

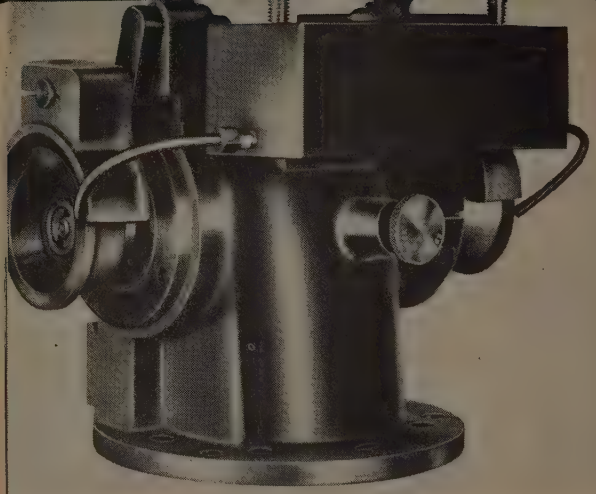
NUMBER 150
HYDRAULIC INTERNAL GRINDER



Send for the Man from

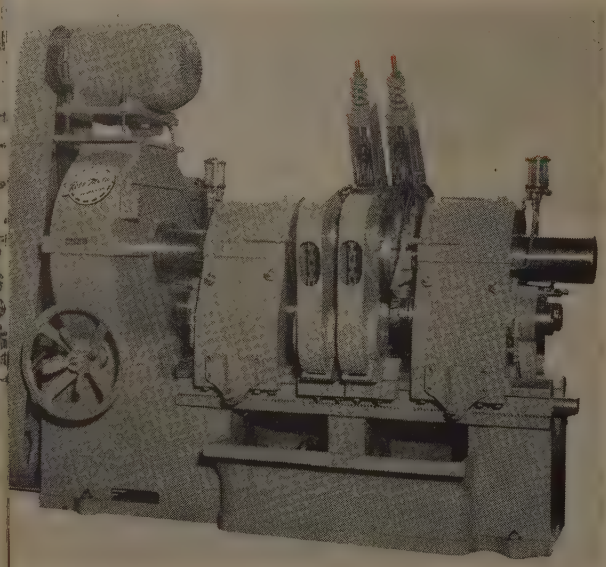
BRYANT CHUCKING GRINDER CO.
SPRINGFIELD, VERMONT, U. S. A.

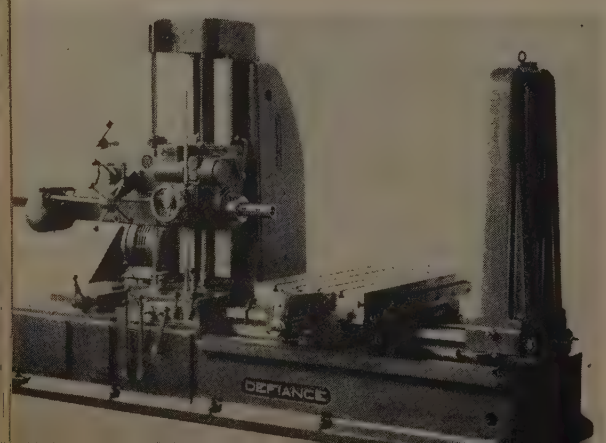
BRYANT



1947 Machine Tool Show

Exhibitors





Covel Manufacturing Co., Benton Harbor, Mich.....Booth 638

Hand feed and hydraulic surface grinders, universal cutter and tool grinder, and twist drill grinders will be demonstrated. Nos. 12 and 22 universal cutter and tool grinder will feature new type spindle assemblies designed for use with diamond wheels in drilling carbide cutters. New No. 22 head is shown here.

C. C. Craley Mfg. Co., Shillington, Pa. .....Booth 54 C

Tool heads for boring and turning, off-set boring heads and boring tools

Cuno Engineering Corp., Meriden, Conn. .....Booth 157

Mechanically cleanable filters.

Cushman Chuck Co., Hartford, Conn. .....Booth 271

Complete new line of air operated power chucks, air cylinders and control equipment, and wrench-operated chucks will be displayed.

Cutler-Hammer Inc., Milwaukee .....Booth 39A

Included in the exhibit will be manual, magnetic and electronic control apparatus; control accessories and components. New diaphragm type timer providing for either time delay after energization or after de-energization will be featured. Timer will give consistent time intervals ranging from 3/10 second to 3 minutes.

Davenport Machine Tool Co. Inc., Rochester, N. Y...Booth 531

Two automatic screw machines with new, welded steel bases will be shown, in addition to two tool setups of standard tools now manufactured as regular attachments.

Davis & Thompson Co., Milwaukee .....Booth 201

Among machines to be shown are: Rotomatic continuous rotary double end drum type milling machine (No. 1-A, illustrated) with automatic chain clamping for rough and finish milling front suspension control arm trunnions. Other machines to be shown are No. 2A milling machine, No. 8LV vertical 8 spindle continuous drilling machine and 12 V, 12 spindle drilling machine.

Dayton Rogers Mfg. Co., Minneapolis .....Booth 14 C

Display will consist of a metal stamping exhibit. One of the features will be the hydraulic overload Pitman for punch presses. Other new product is the self-contained hydro-pneumatic die cushion.

Dayton Rubber Mfg. Co., Dayton, O. .....Booth 328-G

Included in the exhibit will be various types of v-belts, cog belts, v-pulleys.

Defiance Machine Works Inc., Defiance, O. .....Booth 118

Featured exhibit will be model 25A horizontal boring mill together with the universal milling attachment. Other equipment to be shown consists of models of powdered metal presses, drills and special machines. On the boring mill, shown here, outboard bearings are integral with machine; high speeds are attainable on main spindle, thereby gaining the advantage of bigger bearing support. Center of spindle goes below top of table, making it possible to mill full face of work without blocking.

thread checking time and costs Reduced!

Only two instruments are required in many plants to solve external thread checking problems—Sheffield's new Adjustable Leadchek and the Sheffield Visual Gage with thread checking accessories. Checking is quick, accurate and inexpensive.

Write for detailed information on these instruments—and for other thread gages not illustrated.

1 **NEW ADJUSTABLE LEADCHEK** for range of 4½ to 60 threads per inch and for work up to 2" in diameter, equipped with a "tenth" dial indicator for production use or with an "Electrigage" for the toolroom where tolerances are as close as .0001". Write for Inst. No. 27.

2 **VISUAL GAGE** with thread checking attachment for three wire checking of PITCH DIAMETER. Write for VG-500-45.

3 **SINE BLOCK** used with Visual Gage for checking MAJOR DIAMETER, PITCH DIAMETER and TAPER of tapered pipe threads up to 3" in diameter. Write for VG No. 4.

4 **VISUAL GAGE** with Ball Point Accessory for a rapid 2-point check of PITCH DIAMETER of parts up to 1" nominal diameter and with an accuracy comparable to the three wire method. Parts up to 2" can be handled with larger accessory. Write for VG No. 2.

5 **THREADCHEK** for the rapid inspection of LEAD, PITCH DIAMETER, THREAD ANGLE, ROUNDNESS, TAPER and STRAIGHTNESS, especially for studs, bolts and other threaded elements produced in large volume. Write for Inst. No. 10.

Accuracy in the toolroom

Speed with accuracy in production

Chek with **SHEFFIELD** *on thread inspection equipment*

the Sheffield corporation

2587 *Dayton 1, Ohio* **U. S. A.**

Sheffield MASTER CRAFTSMEN

Sheffield's principal products include Gages, Measuring Instruments, Machine Tools, Threading Tools and Contract Services. Standard Gages shipped within 24 hours.

1947 Machine Tool Show
Chicago

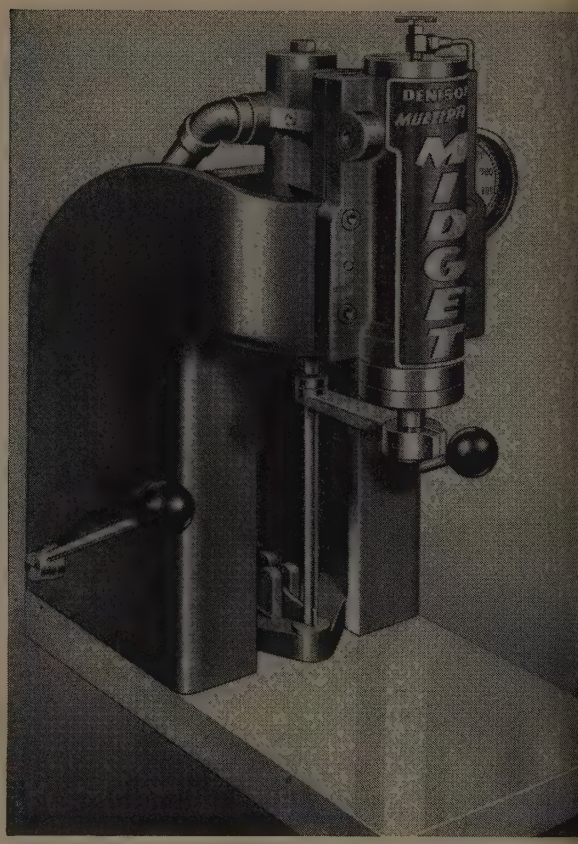
Exhibitors

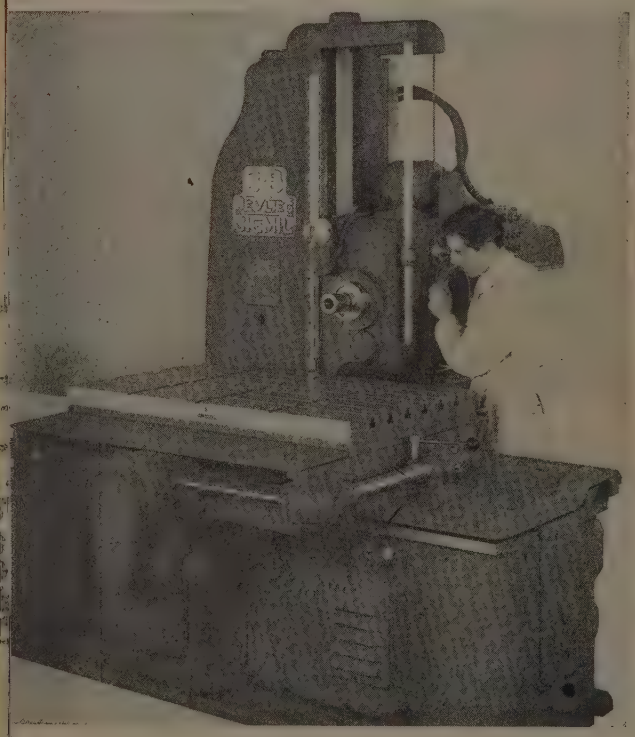
Denison Engineering Co., Columbus, O. .....Booth 622

Products to be demonstrated consist of: A Multipress, Multi-Unit press, Multipress Midget, hydraulic pumps, fluid motors and valves. The 1-ton model Multipress, Midget, shown here, possesses all the characteristics of larger models and is adaptable for gang installations and for successive operation requirements.

DeVlieg Machine Co., Detroit.....Booth 527

Horizontal boring machines, jig millers, special and standard.





The DoAll Co., Des Plaines, Ill. .....Booth 37

Exhibits at the show and at the company's Des Plaines plant will feature four developments: Low cost all-purpose sawing machine, a small unit for precision measuring and segregation of production parts; new hand-operated surface grinder which employs hydraulics as the "lift" to its hand operation; nine different models and sizes of variable speed pulleys. The Handraulic precision surface grinder, shown here, has a direct coupled hydraulic cylinder to power table movement.

Dore Manufacturing Co. Inc., Grayling, Mich.....Booth 34 A

Straightening, cut-off machines, reels, wagons and baskets.

Dow Corning Corp., Midland, Mich. .....Booth 36 A

Display will present Silicone products as new engineering materials. Featured will be Silicone insulation for motors, transformers, controllers and other electrical equipment.

Eastern Machine Screw Corp., New Haven, Conn. Booth 160

Complete line of H & G screw thread cutting equipment will be exhibited, including both self opening and solid adjustable die heads, chasers, threading machine, chaser grinders, recently designed "SMM" die head for chucking machines. The "SMM" is especially suitable for jobs when machine can tap and thread in same position.

Eclipse Counterbore Co. .....Booth 603

New cutting tools, developed during the war, will be shown. These include carbide-tipped tools, inserted blade tools and high speed steel tools. Some tools have three, four or five diameters for cutting as many surfaces at one time.

1947 Machine Tool Show

Exhibitors

gin National Watch Co., Sapphire Products Division, Aurora, Ill. ..... Booth 35 E

Sapphire burnish-sizing tool, designed to solve the prob-m of bringing powdered metal and other soft bearings ack to shape and size after staking operations is to be atured. Other products include cutting and boring, honing nd burnishing tools; sapphire ball bearings, gages, wear strips.

nco Manufacturing Co., Chicago ..... Booth 648

irty different models of turret toolposts and tailstock rrets will be displayed. Toolpost turrets will feature 12 ation indexing and hardened tool blocks and counter posts. ew model 650 hex turret for bed of medium sized lathes will be in operation on 15-inch lathe.

ngineers Specialties Division; Universal Engraving & Colorplate Co., Buffalo ..... Booth 47 E

ptical comparators, gaging fixtures, chart gages and optical gaging accessories will be shown.

verede Tool Co., Chicago ..... Booth 37 B

ffset boring heads and jig boring bars, lathe turning tool holders will be shown.

t-Cell-O Corp., Detroit ..... Booth 518

ecision form and thread grinders, vertical boring machine, ecial automatic machine, two-station automatic tool grind- are to be shown. A featured machine shown here, will the new style 35-A precision thread grinder which is rdraulically operated and electrically controlled. It ac-mmodates single or multi-rib wheels, with diamond dres-rs or form crusher.

ie fully automatic piston boring machine receives from chute aluminum alloy automotive pistons with wrist pin les just as they are cast, and completely finishes holes nd ejects finished pistons onto a conveyor—all automat-ically and at the rate of one piston every 30 seconds.

afnir Bearing Co., New Britain, Conn. ..... Booth 438

ll bearings and ball bearing power transmission equip-ent, display of typical bearing applications, cutaway spin-es to illustrate various types of mountings in machine tool applications will be featured.

airbanks, Morse & Co., Chicago ..... Booth 33 A

Motors and electrical equipment.

deral Electric Products Co., Newark, N. J. ..... Booth 446

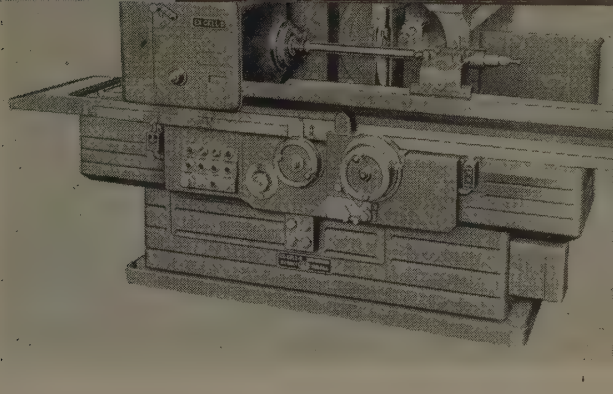
agnetic motor starters to control power circuits from ½ to 100 horsepower will be exhibited.

deral Products Corp., Providence, R. I. ..... Booth 47

utomatic sorting gages, snap, small bench thickness gages, al indicators, indicating micrometers are to be exhibited.

llows Gear Shaper Co., Springfield, Vt. ..... Booth 107

ature of the exhibit will be the planetary gear shaper, own here, which employs a large gap-type cutter, ap-



proximately 16 inches in diameter, around which work plan-ets. Cutter is reciprocated, but does not rotate. Work is held on individual work-spindles carried in rotating turret. Other products to be shown are gear shapers and a new gear shaving machine for external and internal spur and helical gears; cutters and tools.

The Felters Co., Boston ..... Booth 35 D

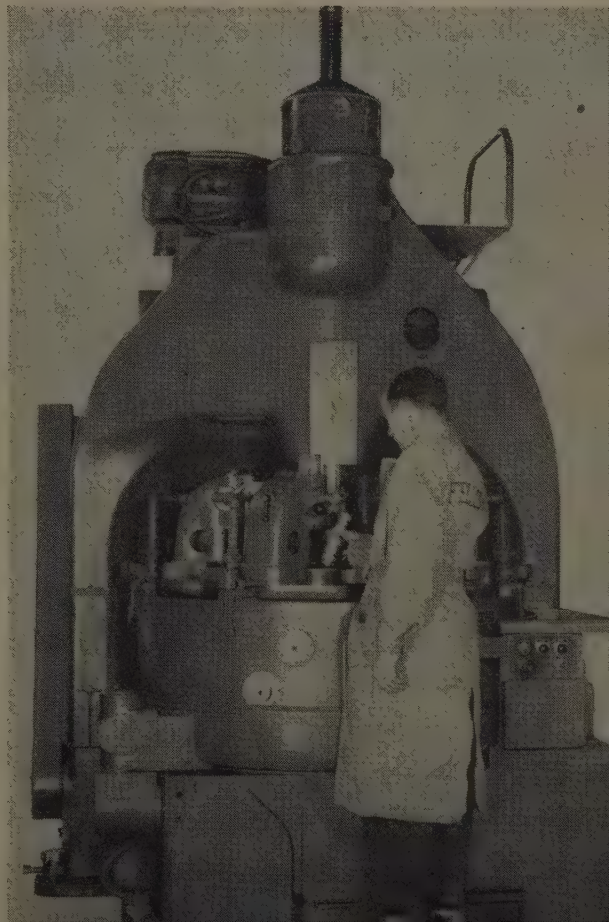
Red Line Unisorb H and cement will be shown in typical punch press applications.

Fitchburg Engineering Corp. Fitchburg, Mass. ..... Booth 412

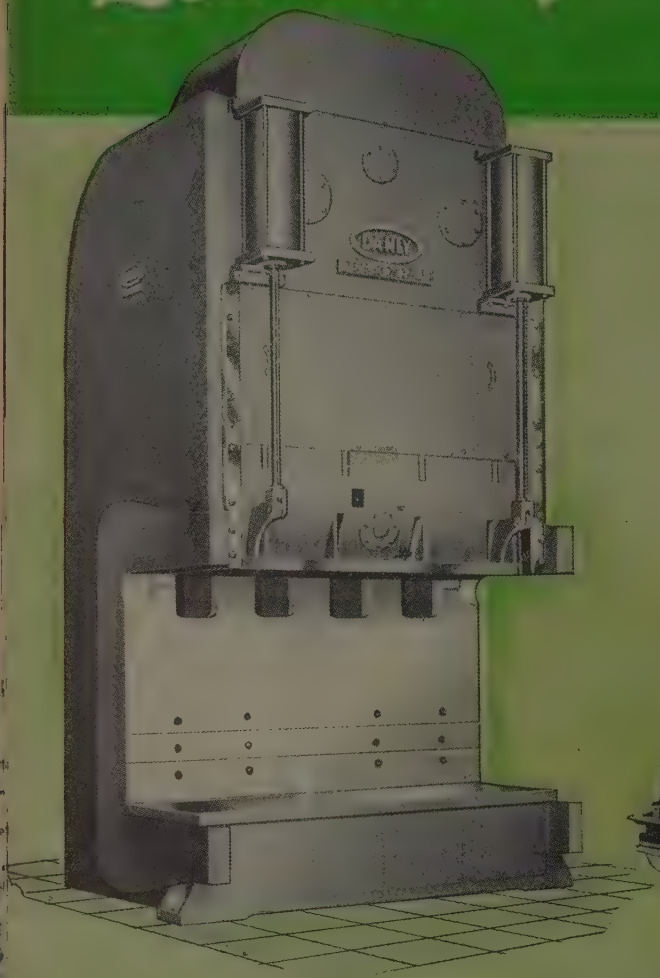
Special purpose production milling and boring machines.

Fitchburg Grinding Machine Corp., Fitchburg, Mass. ..... Booth 564

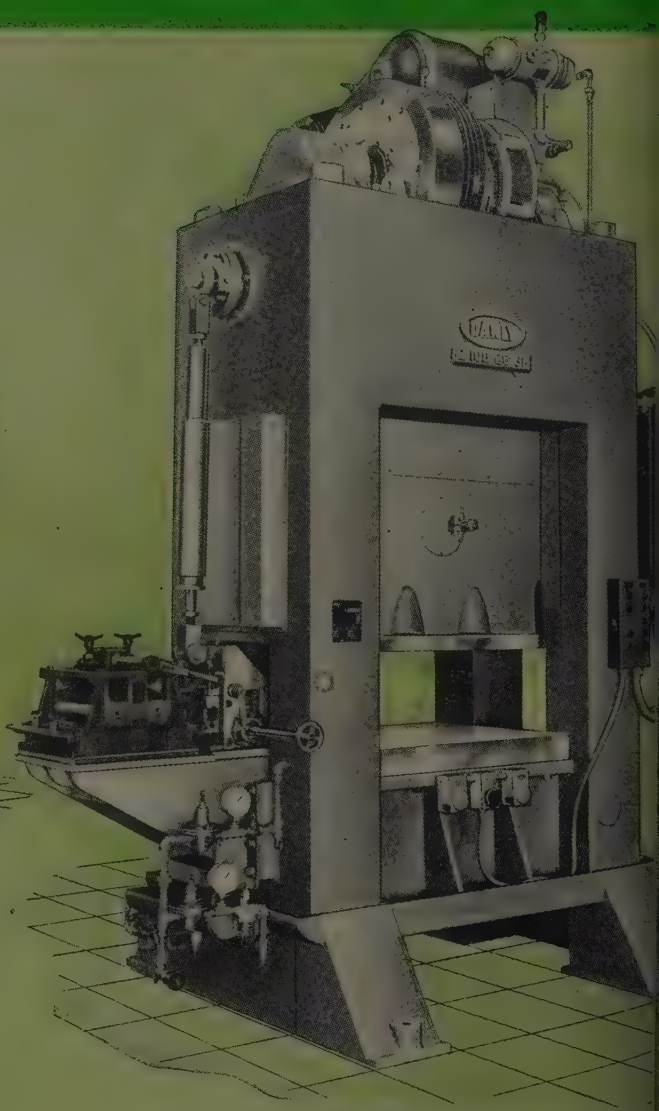
Exhibit will consist of plain cylindrical grinder, continuous multi-spindle drum type automatic grinding machine, dou-ble Bowgage grinder with two wheel heads, special ma-chine base.



Leaders of Industry know



DANLY 175-ton Eccentric Gear Gap-Frame Press



DANLY 100-ton High Production Press

. . THE PRESS for MODERN PRODUCTIO

reater Stamping Production Depends
n Less "Downtime" in Press Operation

DANLY 1000-ton 4-Point Straight-Side Press

leaders in the automotive, farm implement, electric appliance and general manufacturing fields, know that dependable, *continuous press operation* is necessary for volume stamping production.

To meet this requirement, the Danly Press is designed with a maximum safety factor wherever stress occurs. Frame construction, gearing, slide suspension, lubrication, clutch and brake assembly are designed for long life in capacity operation. Every feature of the assembly is designed for rapid maintenance and easy accessibility.

Machined to rigidly-held tolerances and properly aligned in assembly, the Danly Press in operation makes for faster runs, accurate stampings, burr-free parts and longer die life.

The Danly Pressure Oil Spray Lubrication System pipes clean filtered oil directly to each gear and driving member in the crown and slide. This system provides a clean, fresh oil supply that does not require daily attention.

Thus from the standpoints of construction, operation and maintenance, Danly Presses attack costly "downtime," and ***Less Downtime Means Greater Production.***

Danly's Press Division will be glad to furnish more detailed information on any one of the presses shown here.

DANLY

MACHINE SPECIALTIES, INC.

2100 South 52nd Avenue • Chicago 50, Illinois

Engineered to Specifications

1947 Machine Tool Show Chicago

Exhibitors

Foote-Burt Co., Cleveland ..... Booth 51

To be shown are vertical surface broaching machine, 4-spindle sensitive drilling machine, Type G radial drilling machine, No. 2 surface grinding machine, special way type drilling and tapping machines.

Fosdick Machine Tool Co., Cincinnati ..... Booth 15

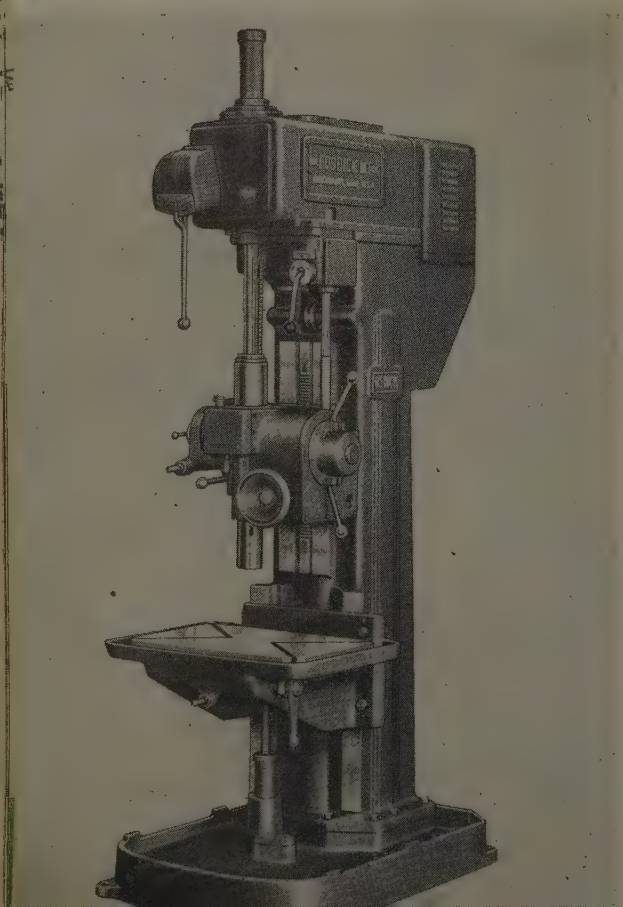
Radial drills, sensitive radial drills, jig borer, will be shown. The Fosdick simplified upright drill, shown here, has nine spindle speeds in geometrical progression with range of 37 to 600 revolutions per minute, to 100 to 1600 rpm. Drive from the motor goes directly through a gear and pinion to the main gear train. Range of feeds are from 0.002 to 0.010, or 0.004 to 0.020-inch.

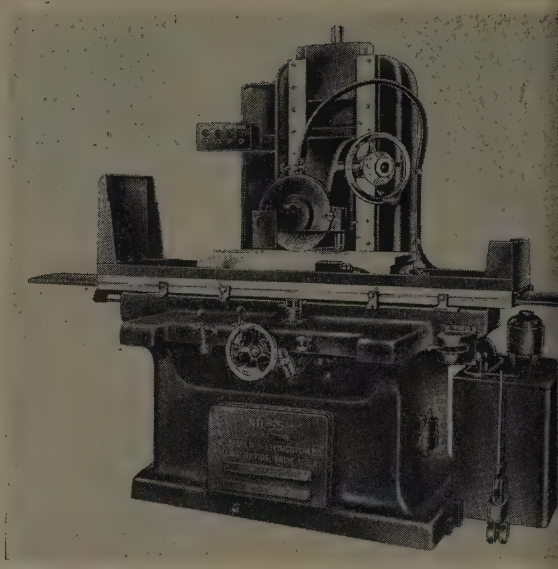
Furnas Electric Co., Batavia, Ill. ..... Booth 33 C

Controls, reversing switches and pressure switches.

Gallmeyer & Livingston Co., Grand Rapids, Mich. .. Booth 230

Exhibit will consist of Grand Rapids production type hydraulic feed surface grinder, tool room hand and hydraulic feed surface grinders, universal cutter and tool grinder, twist drill grinder, combination drill and tap grinder. The No. 55 hydraulic feed surface grinder, shown here, will be built around a special high column and equipped with 20-inch diameter wheel, making it possible to grind dies with guide or leader pins in position.





Gardner Machine Co., Beloit, Wisc. ..... Booth 42

Featured will be two completely new flat surface grindin machines. One, a double spindle grinder for parallel su facing operations, is equipped with a "feed-thru" fixtur for high production. The second, a single head grinder, equipped with a power-operated oscillating work tabl

Gardner Publications Inc., Cincinnati ..... Booth 56

Publications.

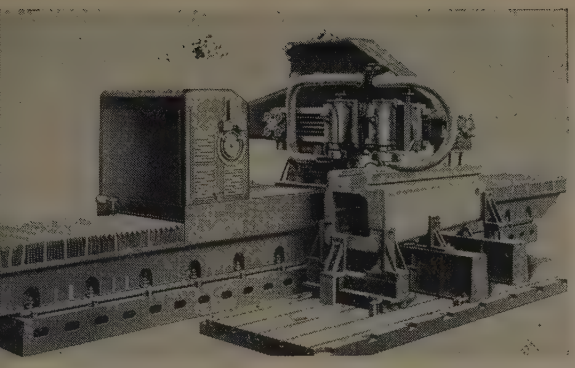
Gay-Lee Co., Ferndale, Mich. ..... Booth 302

A new carbide slitting saw designed to reduce tool breal age will be introduced. It is made with a steel hub pe manently bonded to a cemented carbide blade to eliminat fracturing due to strain imposed by mounting screws an nuts.

Gear Grinding Machine Co., Detroit ..... Booth 67

To be shown are external involute gear and spline grind ing machine with automatic grinding wheel feed, constan velocity universal joints and overrunning clutch and anti friction flexible coupling.

Featured is the type OG—9 x 6 universal oscillating grinde



hown here) developed to finish spherical, conical and cyl-drical surfaces on small parts. Oscillation of work head, adjustable from 0 to 90 degrees in two quadrants. Spin-e is driven through step sheaves to give speeds of 110, 230 and 360 revolutions per minute.

eneral Electric Co., Schenectady, N. Y. .....Booth 240
w adjustable-speed Tri-Clad induction motor, new feed-verse gear-motor drive and induction frequency converter ll highlight General Electric's exhibit. Also on display ll be machine tool transformers, plugging, switches, oil-ht push-button units, electronic positioning control system and latest relays and Switchettes.

eneral Machinery Co., Hamilton, O. .....Booth 110
ace this company builds only extremely large machine ols, the exhibit will feature models and animated descrip-tions.

eometric Tool Co., Division of Greenfield Tap & Die Corp., New Haven, Conn. .....Booth 50
hibit includes improved self-opening die head for use on ngle spindle automatic and hand screw machines, and a new line of "Supermetric" ground thread chasers.

ddings & Lewis Machine Tool Co., Fond du Lac, Wis. .....Booth 315
splay will include new and improved horizontal boring, lling and milling machines and accessories. A new pre-ion way grinder, shown here, develops surfaces of flat-ss varying by only a few ten-thousandths of an inch over ngth of 20 feet or more. Precision grinding may be done at any angle required for V-ways, dovetailed slides, vertical surfaces and flat ways. Maximum rigidity of grinding heads is maintained in all positions.

Gisholt Machine Co., Madison, Wis. .....Booth 304
Included in the display will be: Universal ram type and saddle type turret lathes, hydraulic automatic lathes, Simplimatic and Fastermatic automatic lathes, superfinishers, balancing machines, special turn milling machine and auxiliary exhibits. The new Gisholt turn milling machine, shown here, is a special machine for simultaneously turn milling all crankpins and facing the adjacent cheeks and counterweights on a crankshaft to a finish ready for grinding. This machine is designed and powered to produce 24 crankshafts in a 48-minute hour. Weighing approximately 50 tons, it occupies about 143 square feet of floor space.

Gits Brothers Mfg. Co., Chicago .....Booth 405
Entire line of oilers, oil and grease seals and lubricators.

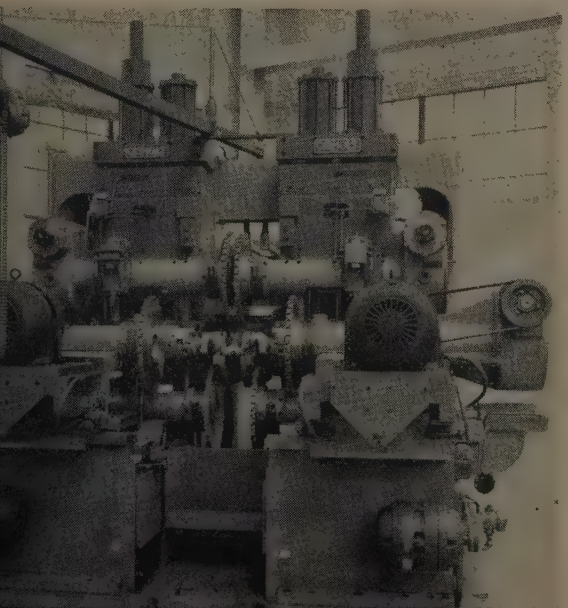
Gleason Works, Rochester, N. Y. .....Booth 330
Display will consist of straight bevel gear generators, roughers, planers, Revacycle completors, testers, tool sharpeners; spiral bevel, Zerol bevel and hypoid generators, grinders, formate finishers, burnishers, lappers, cutter sharpeners etc.

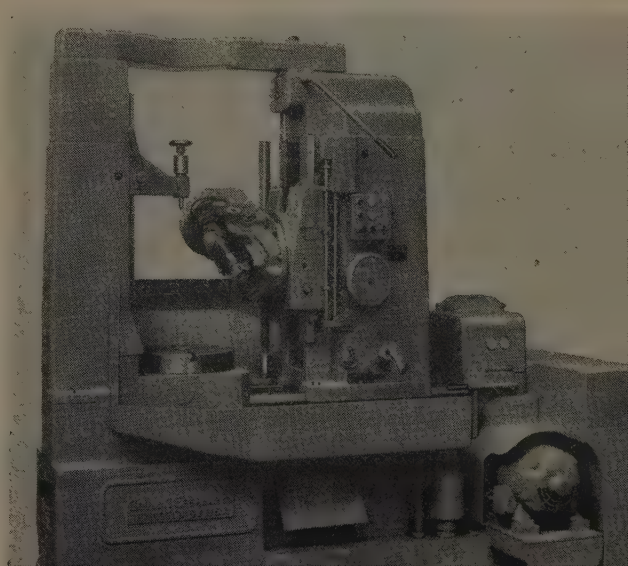
Goddard & Goddard Co., Detroit .....Booth 605
Maintenance of carbide tipped, inserted blade cutters will be demonstrated. Also shown will be milling cutters, form and profile cutters, multiple thread milling cutters, boring tools and reamers, etc.

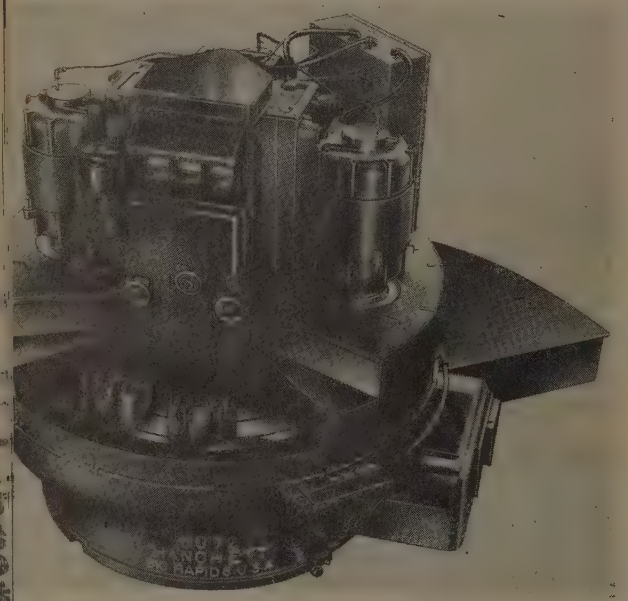
George Gorton Machine Co., Racine, Wis. .....Booth 2
Tracer-controlled milling machines, universal cutter grinders, carbide tool grinders, tools and cutters.

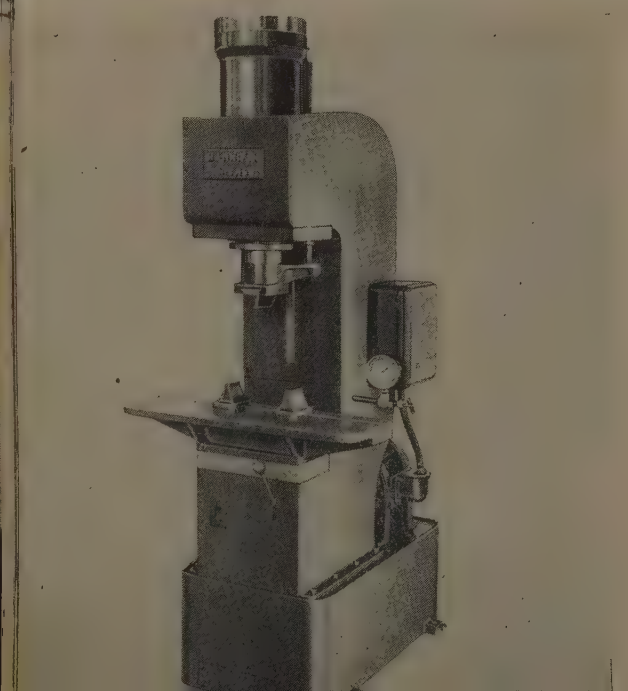
Goss & deLeeuw Machine Co., Kensington, Conn. .Booth 421
Automatic chucking machines.

Gould & Eberhardt, Inc., Irvington, N. J. .....Booth 41
Shapers and gear hobbing machines will be shown. New electrified push-button-operated gear hobbers (No. 24 H shown here) are suitable for cutting spur gears, helical gears either differentially or nondifferentially, and worm gears, by the infeed method. These machines are furnished for both conventional hobbing with downfeed, and for climb hobbing with upfeed.









1947 MACHINE TOOL SHOW

Exhibitors

G. A. Gray Co., Cincinnati ..... Booth 501

New 30 in. x 8 ft Gray Openside Planer Cub will be shown. See cut, left. Machine has two rail heads and one side head, all equipped with automatic tool lifters, 15 horsepower simplified variable voltage main drive motor, affording table speeds up to 300 feet per minute, to enable efficient use of high speed carbide planer tools. Also to be exhibited are a heavy duty double housing planer, horizontal boring, drilling and milling machine, and a unit milling head from a planer type milling machine, planer tools, milling cutters and accessories.

Greenlee Bros. & Co., Rockford, Ill ..... Booth 53

This company will exhibit a new compact 7-inch hydraulic way-type drill unit designed to handle a wide range of special drilling and boring operations. Outstanding feature is compactness of design which permits installation in small space. Six-spindle automatic screw machines and special tapping unit with hydraulic feed will be included in the exhibit.

Hall Planetary Co., Philadelphia ..... Booth 141

To be shown are high-production, precision thread and form-milling machine, the Planatester, an instrument for determining toughness of hardened steels, and a newly-designed arbor having two locating diameters.

Hanchett Mfg. Co., Big Rapids, Mich. ..... Booth 612

Exhibit will consist of double spindle grinder, reciprocating table production surface grinder, rotary production surface grinder, automatic production surface grinder, shown here, and the No. 24-D duplex rotary production surface grinder. The last-named machine is equipped with two 30-inch diameter rotary work tables to operate independently of each other, electronic control cabinets for vari-speed table rotation.

Hannifin Corp., Chicago ..... Booth 411

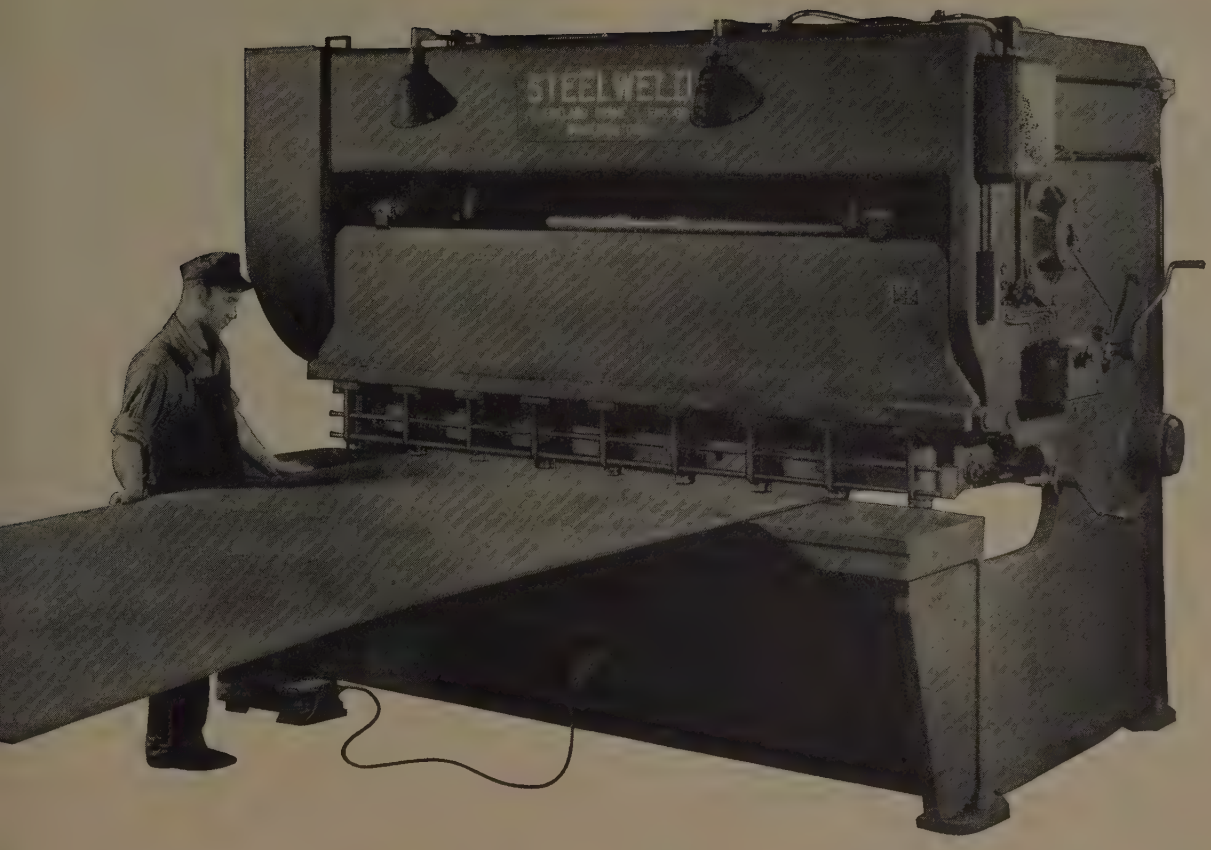
Broad line of hydraulic and pneumatic power and production equipment is to be demonstrated, including hydraulic presses, portable hydraulic riveter, punch, utility press, multiple piercing unit, pressure generators, pneumatic presses, hydraulic and pneumatic cylinders, air control valves. The 25-ton hydraulic straightening press, shown here, is used in the manufacture of crankshafts, camshafts, axles, lathe spindles, gear shafts and other parts.

Hanson-Whitney Machine Co., Hartford, Conn. ..... Booth 441

Equipment to be exhibited includes universal semiautomatic thread milling machines, rapid precision centering machine, oil groove planing attachment, ground thread taps, multiple cutters, thread gages, lead screws etc.

Hardinge Brothers Inc., Elmira, N. Y. ..... Booth 45

Two categories of high speed precision machine tools and accessories will be shown: For production departments there will be multiple operation chucking machines and second operation machines. Collets, feed fingers, circular cut-off tools and circular form tool sharpening fixtures are to be exhibited. For tool rooms, the group of machines consists of screw cutting lathe, precision lathes, plain and universal milling machines and vertical milling machine.



ALL STEELWELD SHEARS
CONTROLLED ELECTRICALLY...

PERATION of Steelweld Shears is unusually easy and convenient. There is no tiresome lift- g of the leg to work a foot treadle. Slow, fatiguing ee action has been replaced by fast easy toe action.

A safety type electric foot switch is used. It can slid around the floor wherever most convenient. enables shearing speeds not attainable with foot eadles for certain cutting operations.

For instance, when cutting narrow strips from a g sheet, the operator can push the sheet at the end and control the shear at the same time. He need not be near the machine. As the sheet becomes shorter he can move the switch along with his foot to always be within easy reach.

There is no extra charge for electrical foot control on Steelweld Shears — it is standard equipment on all size machines.

Steelweld Shears are radically different from all other shears with many outstanding features. Get the facts on these truly new and modern machines. Learn about the advantages they offer you.

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CATALOG No. 2011 gives construction and engineering details. Profusely illustrated.

THE CLEVELAND CRANE & ENGINEERING CO.

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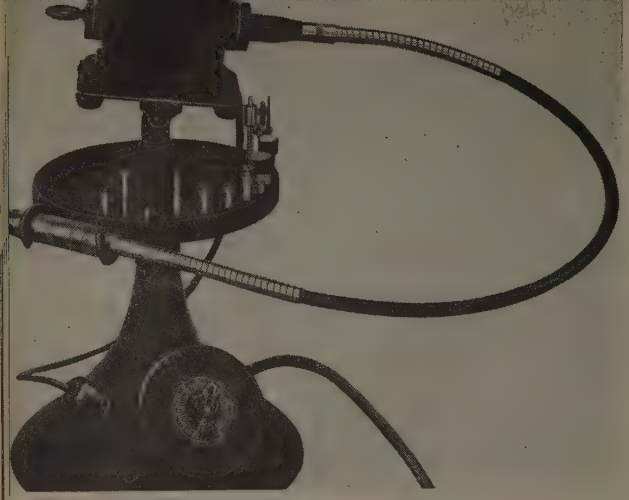
STEELWELD PIVOTED BLADE SHEARS



R. G. Haskins Co., Chicago ..... Booth 675

Working display will consist of the complete line of Haskins flexible shaft machines. Featured will be the VB2 high speed grinder, shown here. This machine, in both pedestal and bench-mounted types, has a ¼ horsepower special high torque motor that delivers 18,000 revolutions per minute free speed. Reducing collet holds wheels up to 1-inch.

Heald Machine Co., Worcester, Mass. ..... Booth 511

Three new lines of Heald machines, internal and surface grinders and Bore-Matics will be shown. Ten Bore-matics, including a Tri-way will be exhibited, three surface grinders and seven internal grinders including Gage-Matic, Size-Matic, combination, plain and centerless internals.

Hendey Machine Co., Torrington, Conn. ..... Booth 105

Display will include the No. 2 14-inch general purpose light duty lathe and 9 x 24-inch Hendey tool and gagemakers' lathe. The latter machine, shown here, has a variable speed power unit consisting of an alternating to direct current motor generator set and speed control rheostat providing stepless spindle speeds from 40 to 2000 revolutions per minute, both forward and reverse. Quick-change gear box gives 66 different feeds and 66 different threads.

Henry & Wright Mfg. Co., Hartford, Conn. ..... Booth 131

This company will feature their new 25-ton Speedmaster dieing machine, along with a standard 50-ton dieing machine, two-spindle class R drilling machines, automatic power straightener, automatic drum type reels. The 25-ton machine, shown here, has crankshaft located below die bed to give low center of gravity and remove all angular thrust from upper crosshead or punch-carrying member. Machine is supplied with speed range of 235 to 700 strokes per minute.

1947 Machine Tool Show

Exhibitors

Hitchcock Publishing Co., Chicago ..... Booth 632

Publications.

Holo-Krome Screw Corp., Hartford, Conn. ..... Booth 33 D

Socket screw products and flat head socket cap screws.

E. F. Houghton & Co., Philadelphia ..... Booth 47-D

Cutting oils, lubricants and packings will be exhibited.

Hyatt Bearings Division, General Motors Corp., Harrison, N. J. ..... Booth 433

Cylindrical roller bearings for use in machine tools.

Hydraulic Press Mfg. Co., Mount Gilead, O. ..... Booth 625

Featured will be the "Economy Press". Capable of up to 100 strokes per minute, this hydraulic inclinable press has a pressure capacity up to 50 tons. Pressure is applied by a direct-acting hydraulic ram, incorporating booster rams for rapid traverse. Press closes 984 inches per minute, works at high pressure at 84 inches per minute and opens at 790 inches per minute. Working stroke is 4 inches, 1 inch at maximum pressure, with press reversing automatically when the predetermined pressure is reached.

Hy-Level Screw Products Co., Cleveland ..... Booth 328 C

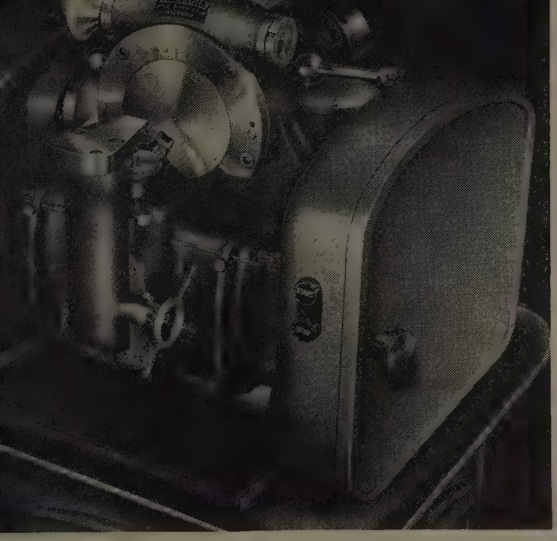
Shown will be the Hy-Level liquid pressure bar feed attachment for automatic screw machines. This eliminates feed tubes, feed fingers, ball races, silencers, extended pusher rods and other extras.

Ideal Industries Inc., Sycamore, Ill. ..... Booth 448

Heavy duty live centers, industrial cleaners and thermo-grip soldering tools are to be shown.

Illinois Gage Co., Chicago ..... Booth 35 H

Speed-O-Matic torqueless impact nut runner will be featured. This portable, electrically operated tool will drive or remove nuts or studs up to ⅝-inch in size. After the nut or



olt is driven down to its seat, the impact mechanism auto-atically engages and applies 120 foot pounds pressure.

inois Tool Works, Chicago.....Booth 302
eatured unit will be new fine pitch gear generating ma-hine designed to produce fine pitch involute gears, either our or helical, varying from the smallest practical diameter p to 3 inches over a 30 to 200 pitch range. The machine, nown here, employs a full generating process and is adapt-able to semi or fully automatic magazine feeding.

dependent Pneumatic Tool Co., Chicago.....Booth 404
Portable pneumatic and electric tools.

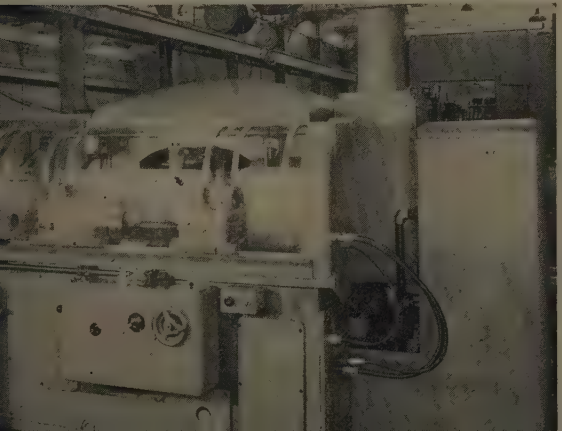
gersoll Milling Machine Co., Rockford, Ill.....Booth 58
rincipal position of the exhibit will be occupied by a spe-al Ingersoll single vertical spindle milling machine shown ere, weighing 80,000 pounds and standing 12½-feet high. lso featured is a 91-inch inserted blade milling cutter.

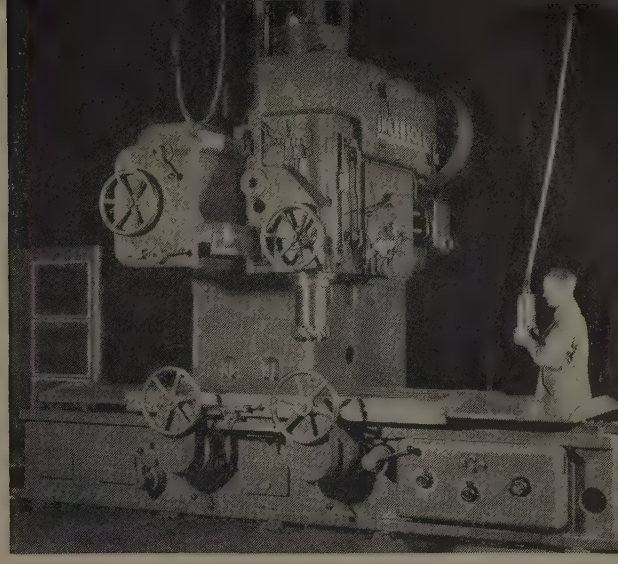
on Age, New York.....Booth 317 A
Publication.

cobs Mfg. Co., Hartford, Conn. .....Booth 504
new keyless impact chuck designed for quick changing twist drills on portable electric drills, drill presses, etc., ill be exhibited along with a new application of "Rubber-lex" collets as applied to machine tool chucking devices. Regular lines of chucks also will be shown.

harles L. Jarvis Co., Middletown, Conn.....Booth 313 C
ew torque-driven tapper, Torquematic and line of taps and dies will be demonstrated.

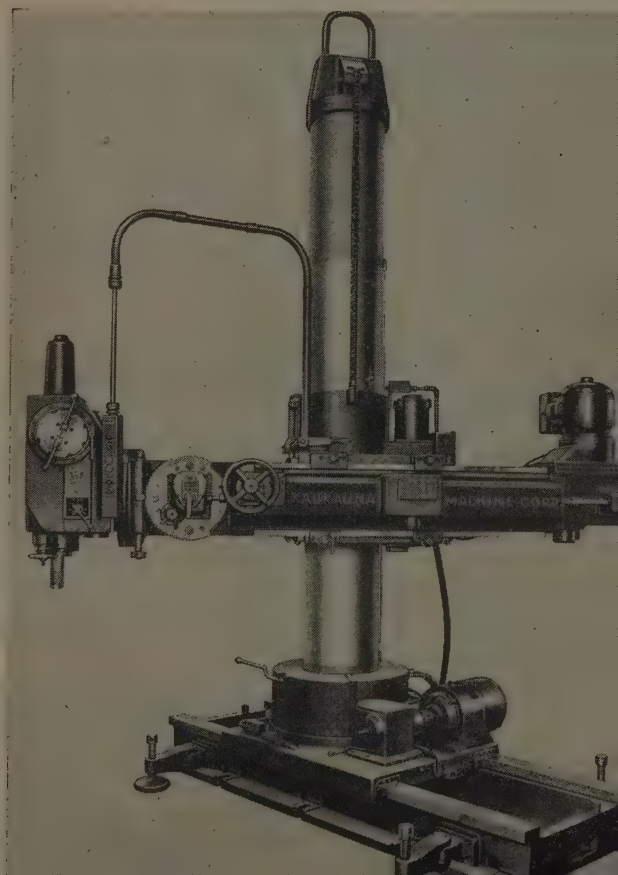
hnson Bronze Co., New Castle, Pa. .....Booth 145
o be shown are sleeve type bearings, cast bronze, sheet etal, babbitt lined, Ledaloyl bearings, bushings and parts, aluminum bearings and replacement bearings.





Jones & Lamson Machine Co., Springfield, Vt.....Booth 326
Exhibit will consist of universal turret lathes, Fay automatic lathes, automatic double end milling and centering machines, automatic thread grinders, optical comparators, automatic opening thread dies and chasers, ground thread flat rolling dies, carbide cutting tools.
Featured machine will be the 6 x 30 automatic multi-rib thread and form grinding machine, shown here. This machine is arranged for both crushed and diamond wheel dressing. It will grind single rib or multi-rib, one or two way, right or left hand, single or multiple starts, straight or taper.

Kaukauna Machine Corp., Kaukauna, Wis.....Booth 117
Following machines will be featured: Portable universal drilling and tapping machine, portable horizontal drilling and tapping macihnes. Indexing table and boring tools will also be shown.



FUNDAMENTALLY NEW DESIGN for UNEQUALLED PERFORMANCE

The matchless speed and power of the 'jet' planes results from aircraft engine design that is fundamentally different

Fluorescent light means perfect light at very low cost . . . the result of design that departs from an established standard

A new engineering approach to a well known requirement in the Wire Recorder

Design of the recent previews a class of unequalled power for the small air carrier

In the Diesel-powered Streamliner, a fundamentally different approach to locomotive design provides the smoothness that makes these trains first choice everywhere

Every Rockford Hy-Draulic Machine Tool, because of the fundamental design feature of Hy-Draulic Drive and Feeds will provide outstanding performance, measurable in terms of better work and faster work at lower cost.

ROCKFORD

Hy-Draulic

MACHINE TOOLS

PIONEER DESIGN . . .

Almost twenty years ago Rockford Machine Tool Co. introduced its first Hy-Draulic machine. The years since then have been a period of constant engineering research and analysis to assure the very best in equipment to meet metalworking's shaper and and planer requirements. This experience in the application of hydraulic design to shapers, planers, slotters, and shaper-planers . . . an experience that has been exclusively Rockford's for almost twenty years . . . makes it possible to offer an engineering and production capacity in Rockford's particular field, that can be equalled by no other organization.

WHY Hy-Draulic DESIGN . . .

The reciprocating ram action of the shaper and slotter, or the similar table action of the planer, represented always a difficult problem in mechanical machine design. Hydraulics provided the most logical method of converting the rotary motion of an electric drive motor into the reciprocating motion of a ram or table. Characteristically Hy-Draulic drives and feeds are smooth and quiet; cutting stroke speeds and feeds are easily and infinitely variable; stroke lengths may be quickly set as required.

IS YOUR PRESENT EQUIPMENT OBSOLETE?

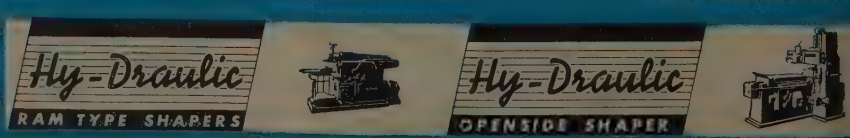
Obsolescence can no longer be measured only in terms of machine accuracy. While accuracy is important, TIME is the biggest factor today. How much machine time, how many costly man hours does your present equipment use up unnecessarily? Check set-up time and machine time on any Rockford Hy-Draulic Machine Tool against a similar machine now in use in your shop. In a competitive market, will you be able to produce quality work at a profit?

SEE ROCKFORD Hy-Draulic MACHINES AT THE SHOW

The new Rockford machine tools, now being announced, represent the first major advancement in overall design since before the war. Whatever your present equipment may be, see the new Rockford machines at the show...on display at Booth 526.

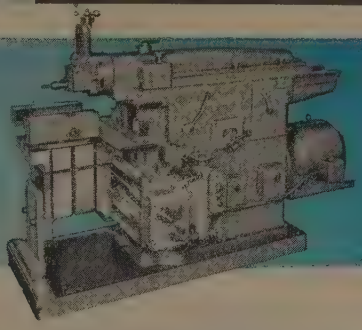
526

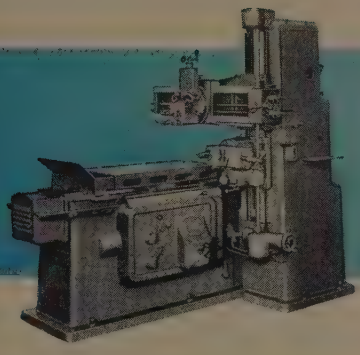
ROCKFORD MACHINE TOOL CO.
Rockford Illinois



1947 MACHINE TOOL SHOW CHICAGO SEPT. 17-26

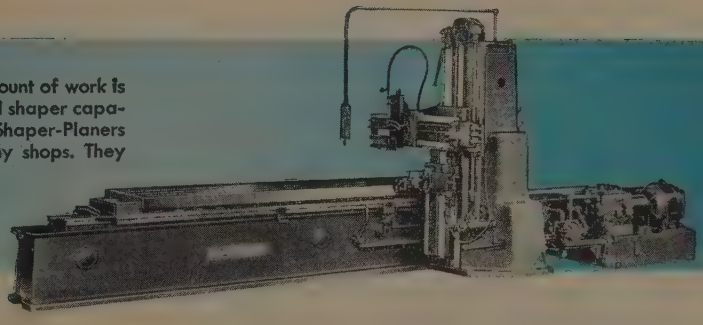
RANGE . . . Rockford Hy-Draulic Ram-Type Shapers offer full capacity range. Cutting strokes may be set from maximum down to fractional divisions of an inch, with precision accuracy in stroke length maintained. Cutting stroke speeds are infinitely variable.

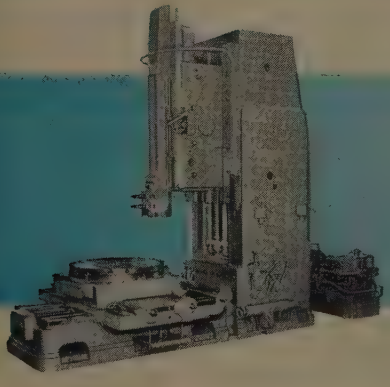




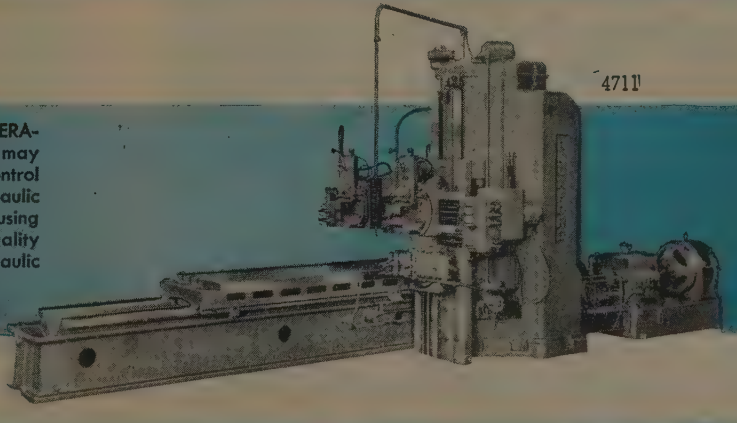
SOUND ENGINEERING . . . It is the belief of Rockford engineers that the Rockford 28" Ram-Type Shaper represents the practical limit for Ram-Type Shaper operation. To meet the requirements of larger shaper work, the new Rockford 36" Hy-Draulic Openside Shaper is offered to metalworking.

SPEED . . . Since a considerable amount of work is halfway in size between planer and shaper capacities, the Rockford Hy-Draulic Shaper-Planers have a wide practical use in many shops. They offer the speed of the shaper with the rigidity of planer construction.





Hy-Draulic DESIGN MEETS ANY REQUIREMENT . . . The vertical travel of the slotter ram provides no problem in design when the actuating assembly is hydraulic. All the advantages of Hy-Draulic construction are found in the Rockford Hy-Draulic Slotters. Ram may be set in any tilted position up to 10° off-vertical.



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DEPENDABILITY—EASE OF SET-UP AND OPERATION . . . Whatever the size or weight may be, Rockford machines are responsive to control and easy to operate. Rockford Hy-Draulic Planers, built as Openside or Double-Housing types, are as easy to run as a shaper. Quality in construction, and excellence in hydraulic design assure dependable accurate operation under all conditions.

Hy-Draulic PLANERS

Hy-Draulic SLOTTERS

Hy-Draulic SHAPER-PLANERS

1947 MACHINE TOOL SHOW

Exhibitors

Kearney & Trecker Corp., Milwaukee .....Booth 301
Twenty-eight milling and precision boring type machines will be in operation. Included are: the model 5D rotary head milling machine; entirely new concepts in bed type designs; automatic cycle control on standard knee type milling machines; three-dimensional accuracy; carbide milling operations; line of simplified milling machines; precision machines for milling and boring; improved cutter grinding technique. Shown here is the model 20 CSM knee type milling machine, featuring automatic table cycle control.

Kennametal Inc., Latrobe, Pa. .....Booth 570
New line of mechanically-held tools having solid cylinder of Kennametal clamped vertically in steel holder and backed up by adjusting screw will be shown, together with single point tools, precision boring tools, roll-turning tools.

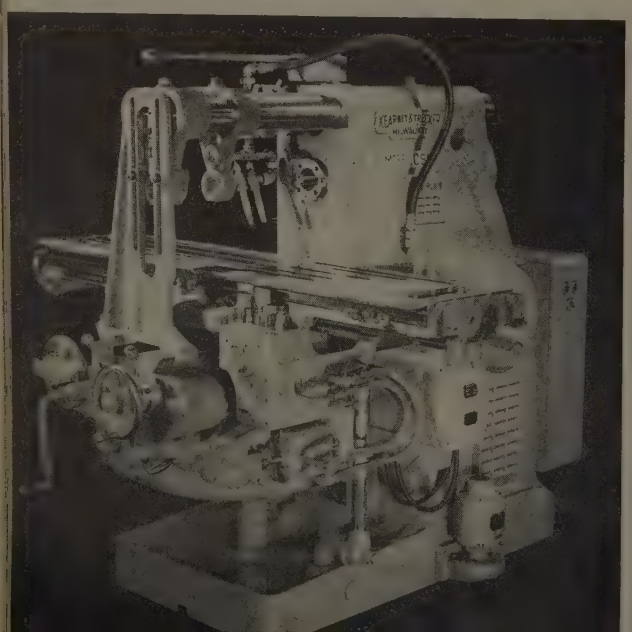
Kent-Owens Machine Co., Toledo, O. .....Booth 432
Exhibit will consist of hand and hydraulic, double spindle and vertical milling machines. One of the featured machines, a 2-20 hydraulic mill, has automatic air-actuated magazine type fixture for milling operations on parts such as wrist pins, king pins, transmission shifter rods, etc.

King Machine Tool Co., Cincinnati .....Booth 502
Vertical boring and turning mills, special grinding heads.

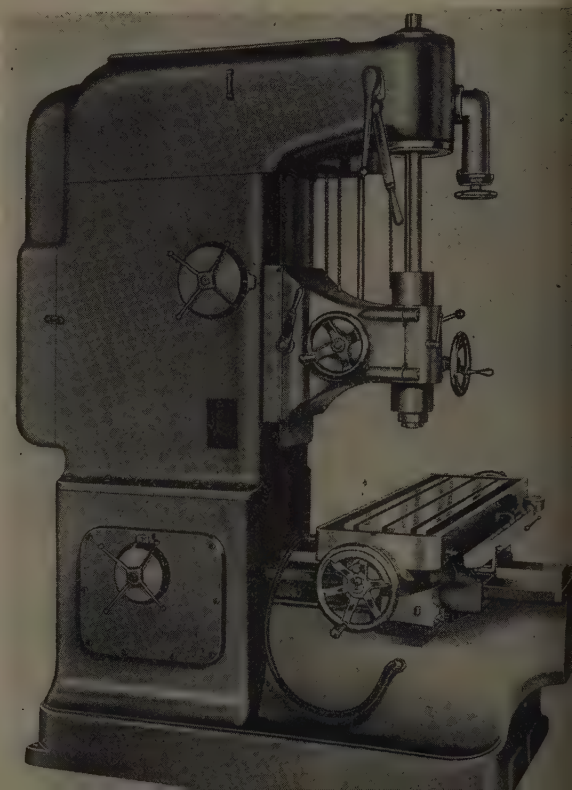
Kingsbury Machine Tool Corp., Keene, N. H. .....Booth 410
Two automatic indexing machines will be in action. One machine, shown here, demonstrates 12 operations on 3 faces of work. It has 12 automatic units and a 60-inch automatic index table with 12 chucks. Second machine will show combined operations on a typical high production job. It drills, spotfaces, counterbores, mills, reams and taps brass heat regulator forgings at 7 pieces per minute.

W. B. Knight Machinery Co., St. Louis .....Booth 151
Three different types of vertical milling and precision boring machines will be exhibited. The No. 50 miller, shown here, is a new machine for vertical milling and precision boring.

Kropp Forge Co., Chicago .....Booth 122
Iron and steel forgings, forging dies.



Landis Machine Co., Waynesboro, Pa. .....Booth 101
Equipment to be exhibited includes the Landis No. 1 centerless thread grinder, thread rolling machine, four-spindle semiautomatic threading machine on which average production will range from 500 to 2000 pieces per hour, ⅜-inch single head threading machine, Lanroll attachment for use on automatic screw machines and turret lathes.
Incorporating all necessary mechanism and controls for grinding by either the "through feed" or "infeed" methods, the centerless thread grinder, shown here, was built for grinding screw threads on straight cylindrical work pieces, as well as on headed or multiple diameter parts.
A new principle is incorporated in the design of the Landis thread rolling machine, shown here. This permits rolling of screw threads on one, two or more diameters of work pieces in a single pass through the machine. Machine embodies use of circular dies and a work support interposed between mating dies for positioning the work piece during rolling.



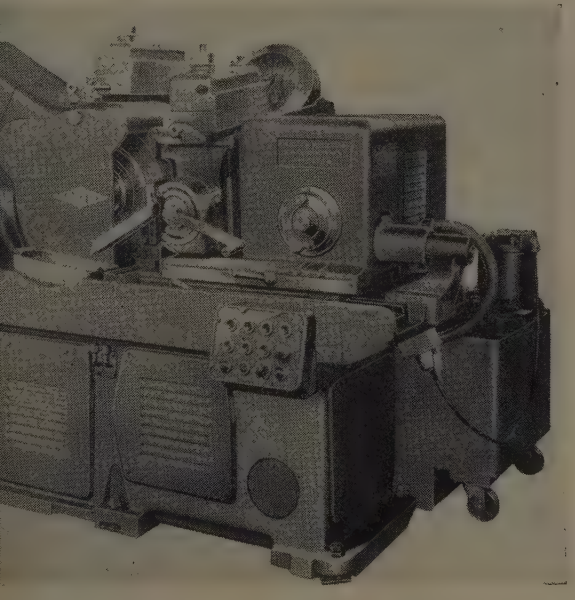
ndis Tool Co., Waynesboro, Pa. .....Booth 303

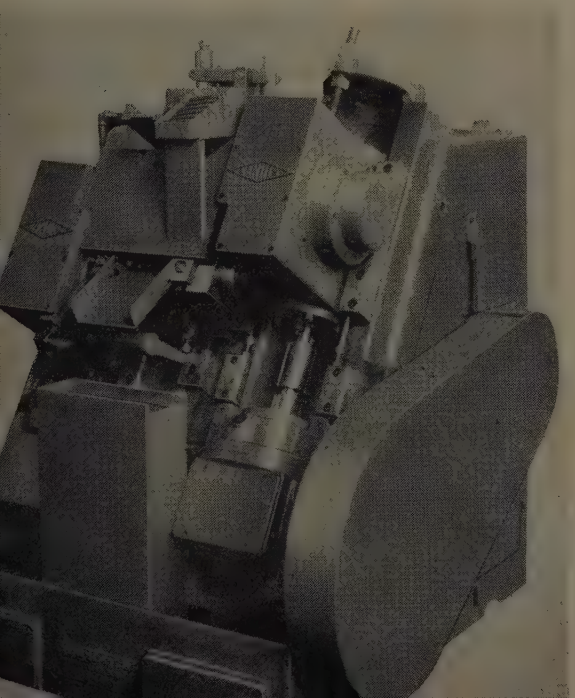
xteen machines will be powered and demonstrated. These ll include plain hydraulic, cam contour, crankpin, center-s, thread and hydraulic universal grinders, all equipped th latest representative accessories.

e new 16 x 42-inch type DH crank pin grinder, shown re, features microsphere wheel spind e bearings, heavy ork heads driven in unison by matched silent chains rough a longitudinal shaft. Hydraulic interlocks prevent ble traverse when grinding; table cannot be traversed th work rest shoe in operative position. This machine is ilt in 16 and 25-inch swing, for crankshafts 32, 42 and 72-inch lengths.

ngelier Mfg. Co., Providence, R. I. .....Booth 434

ay type and automatic indexing machines, automatic posi-e cam-feed drilling units, lead screw feed tapping units and swaging machines will be displayed.





Lansing Engineering Co., Lansing, Mich. .....Booth 35 C

Electronic counting and recording instrument, the Lansing Lecto-Count will be featured.

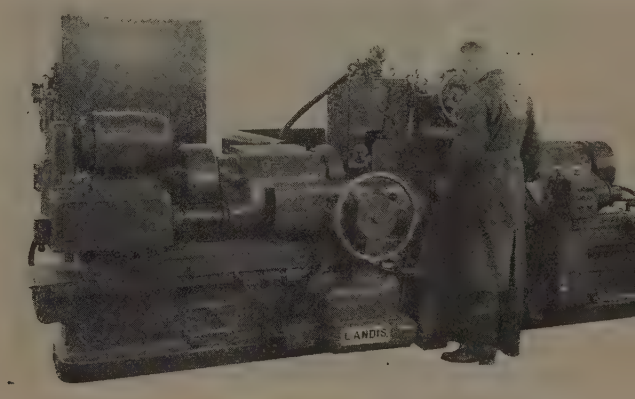
LaPointe Machine Tool Co., Hudson, Mass. .....Booth 642

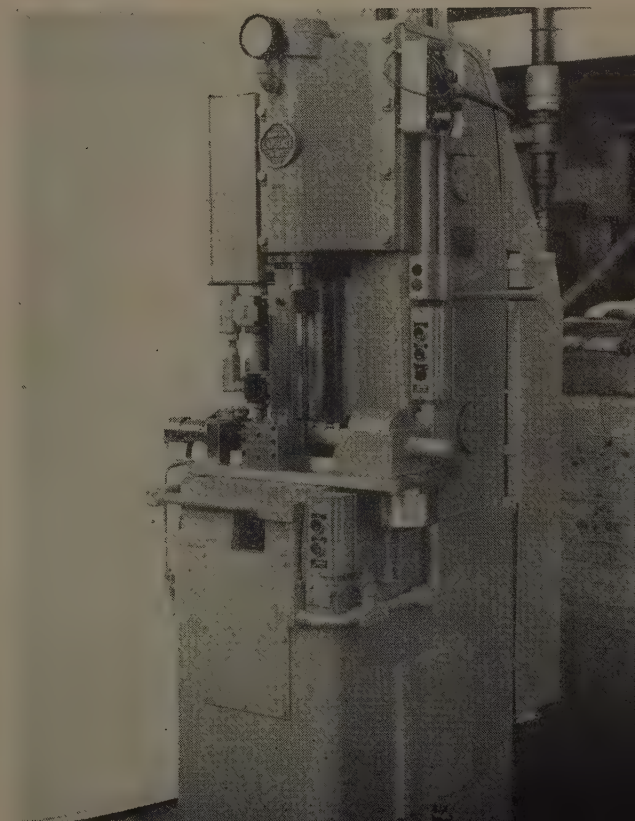
To be shown are seven broaching machines and a complete line of broaches. Display consists of two large and two small vertical broaching machines, one large and one small horizontal broaching machine and a universal broach and tool grinder.

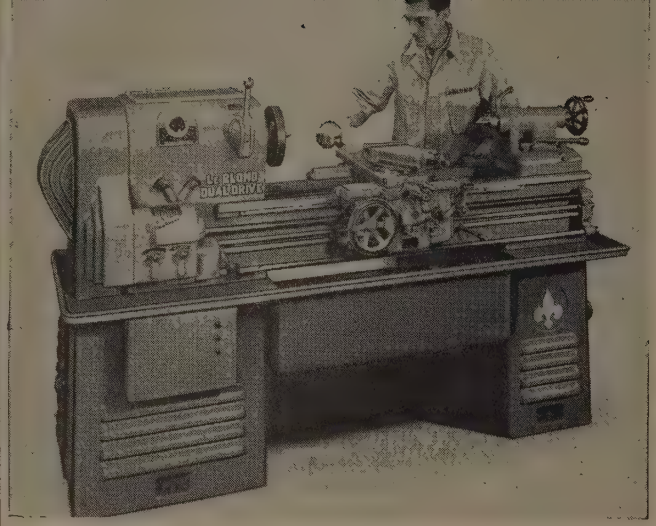
Among complicated jobs to be demonstrated are: High speed production of intricate contours on lock cylinder barrels; broaching, by one machine, of serrated jaws and face of two sizes of Stillson wrench handles; cutting 78 diagonal, keyway-shaped slots around circumference of jet engine compressor wheel.

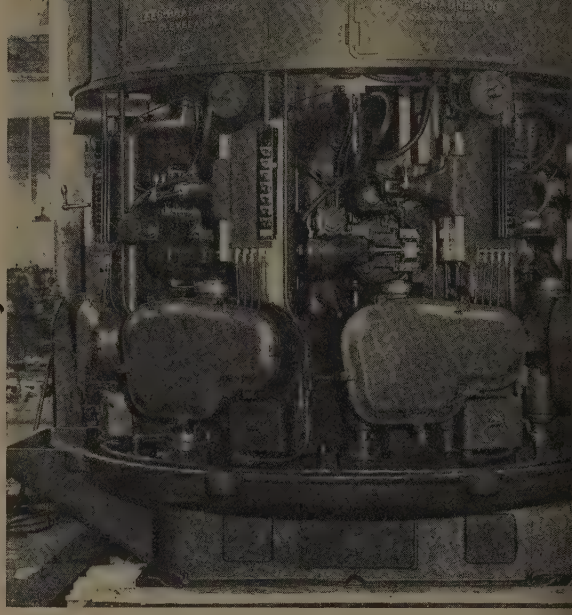
La Salle Steel Co., Chicago .....Booth 157

Parts made from two special steels, "Stressproof" and "La Sulphite" 8640, will be shown. Both steels may be readily machined.









1947 Machine Tool Show

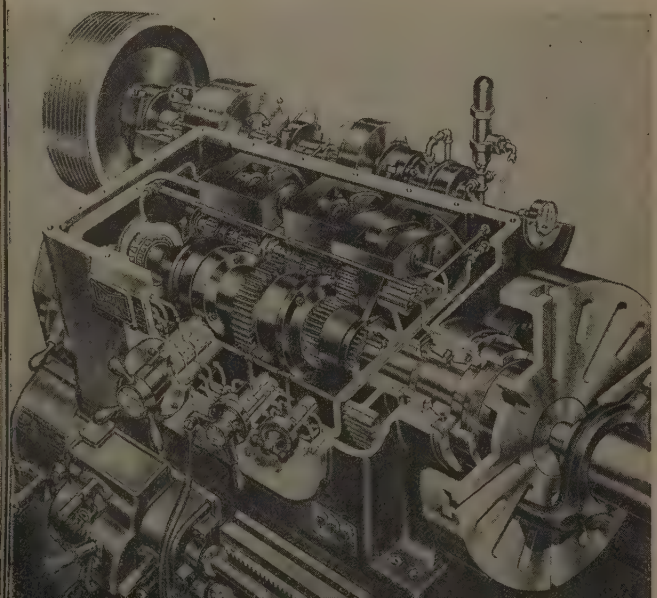
Exhibitors

R. K. LeBlond Machine Tool Co., Cincinnati ..... Booth 507

Four new and nine other lathes, numerous demonstration units, accessories and attachments will be exhibited. The new LeBlond dual drive lathe, shown here, is a combination gear-belt drive headstock lathe with a single lever controlling 12 spindle speeds ranging from 28 to 1800 revolutions per minute. It has a totally enclosed and automatically lubricated quick change box which provides 48 feed and thread changes, one-piece apron with positive jaw feed clutch and multiple disk clutch and brake controlled from headstock and apron.

Lees-Bradner Co., Cleveland ..... Booth 111

Featured will be production gear hobbing machines and universal thread milling machines, as well as a brand new ultra-speed gear hobber capable of being operated at hob speeds up to 1800 revolutions per minute. Shown here is the eight-spindle model 7-A production gear hobbing machine hob head, showing Lees-Bradner tapered bronze bearing hob spindle construction and new electric hob shifter.



Lehmann Machine Co., St. Louis ..... Booth 268

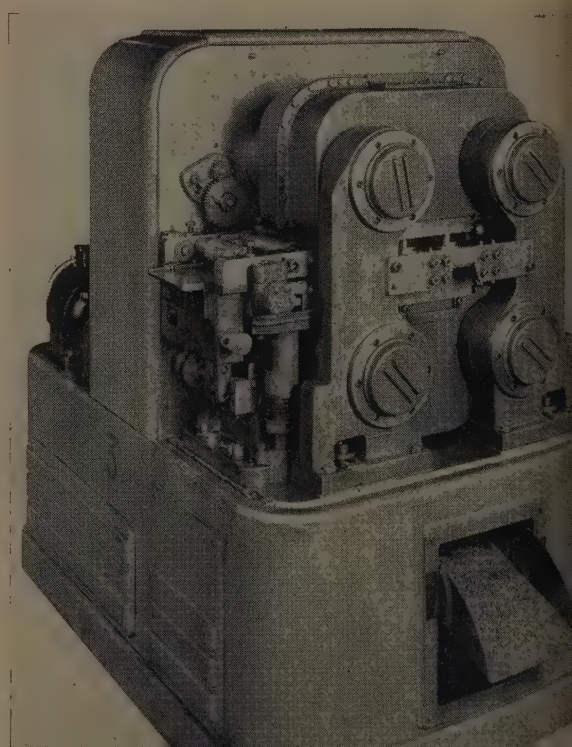
Display will include engine lathes, block type boring bars, fly cutter bars, micrometer fly cutter bars, car wheel type bars, micrometer adjustable blocks, selection of regular blocks and assemblies of Lehmann lathe components. Shown here is a Hydrotrol headstock interior exposed to view, as it will be at the show.

Leland-Gifford Co., Worcester, Mass. ..... Booth 308

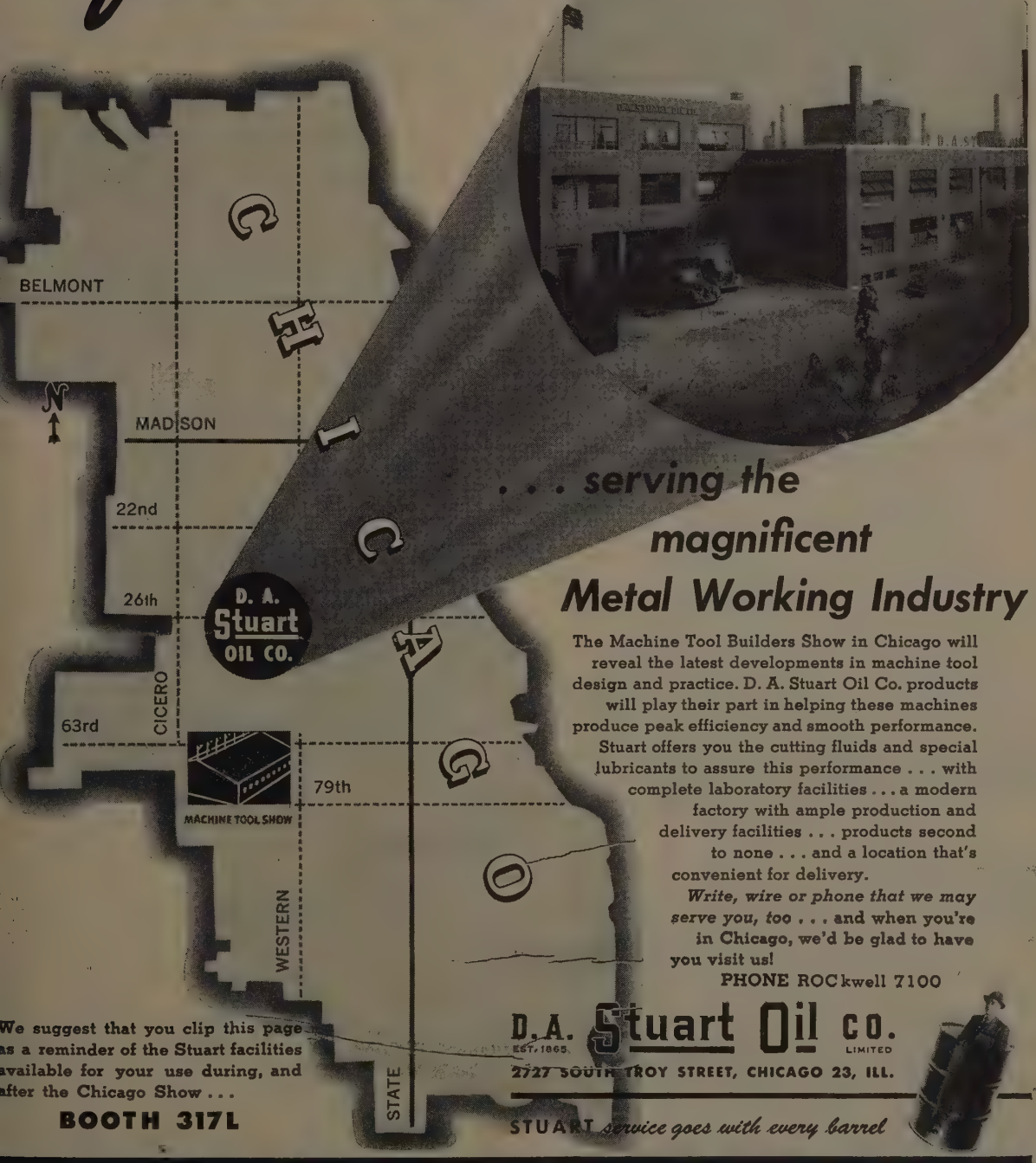
To be exhibited are one, two, three and four-spindle motor spindle drilling machines, multiple adjustable spindle drilling machine, rail type drilling machine, self-contained hydraulic feed drilling unit.

Lempco Products Inc., Bedford, O. ..... Booth 503

Featured will be a "Hyper-Matic" high speed punch press. Also to be shown are a "Pressurematic" press, a multi-purpose grinder, dual spiral expansion reamers and die sets.



Here are on-the-spot facilities...



. . . serving the magnificent Metal Working Industry

The Machine Tool Builders Show in Chicago will reveal the latest developments in machine tool design and practice. D. A. Stuart Oil Co. products will play their part in helping these machines produce peak efficiency and smooth performance. Stuart offers you the cutting fluids and special lubricants to assure this performance . . . with complete laboratory facilities . . . a modern factory with ample production and delivery facilities . . . products second to none . . . and a location that's convenient for delivery.

Write, wire or phone that we may serve you, too . . . and when you're in Chicago, we'd be glad to have you visit us!

PHONE ROCkwell 7100

We suggest that you clip this page as a reminder of the Stuart facilities available for your use during, and after the Chicago Show . . .

BOOTH 317L

D.A. Stuart Oil Co.
EST. 1865 LIMITED
2727 SOUTH TROY STREET, CHICAGO 23, ILL.

STUART *service goes with every barrel*

STURACO DASCOLENE ThredKut EXCELENE DASCO 34
CODOL SOLVOL SUPERKOOL KLEENKUT

1947 Machine Tool Show

Exhibitors

Liberty Planers Inc., Hamilton, O. ..... Booth 415

New electrically controlled planer for heavy duty operation will be on display. The 60-inch double housing planer, shown here, is designed to cut 60 inches without tool slide resetting and without interference with rail at its maximum height. Design is characterized by built-in electrical operation and controls throughout.

Lift Trucks Inc., Cincinnati ..... Booth 35-B

Electric and hand lift trucks, metal pallets, skid platforms, will be exhibited. Featured will be the Hydroelectric K model with differential gears mounted for 180-degree steering action.

Link-Belt Co., Chicago ..... Booth 652

Exhibit will cover complete line of power transmission equipment, consisting of: Link-Belt electrofluid drive, motorized speed reducer, P.I.V. gear—the positive infinitely va speed changer, ball and roller bearings, silent chain d roller chain drives, flexible couplings and other power mission accessories.

Lipe-Rollway Corp., Syracuse, N. Y. ..... Booth

Heavy duty clutches.

Lodge & Shipley Co., Cincinnati ..... Booth

In addition to the smaller sizes, the entire line of mo lathes will be exhibited and in operation. The new L & Shipley model X 16 x 54-inch centers selective hea gine lathe is shown here. This lathe features a 24-s headstock, new bed and carriage ways, totally encl quick change gear box with finger tip dial operation, matic lubrication.

Logansport Machine Co., Logansport, Ind. ..... Booth

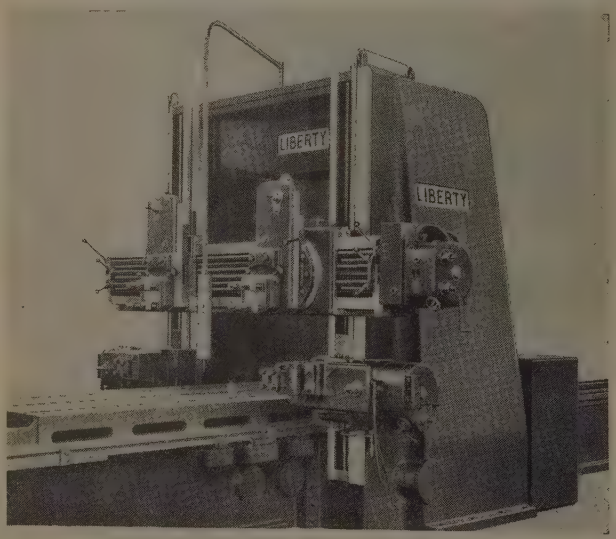
New line of air valves will be on display, along with st ard air and hydraulic devices. The latter include ch mandrels, vises, clamping devices, presses, etc.

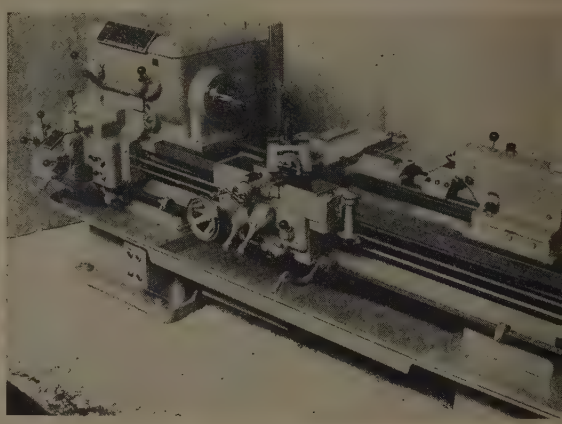
Lovejoy Tool Co. Inc., Springfield, Vt. ..... Booth

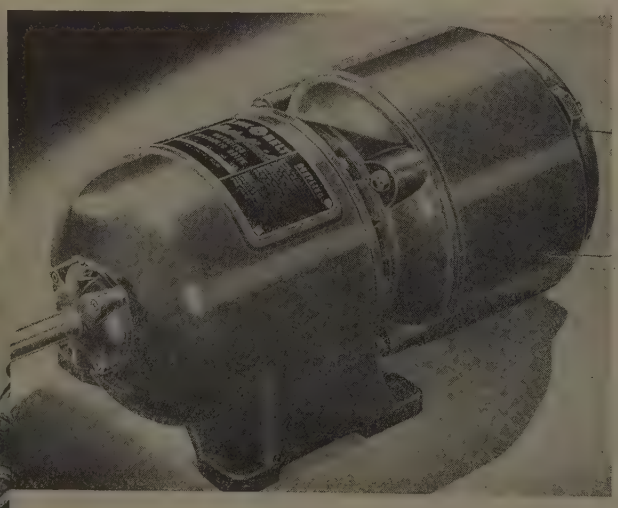
Complete standard line of face milling cutters in diam from 2½ through 24 inches. Cutsall milling cutters, st ard and special tools, new carbide-tipped end mills holders will be shown.

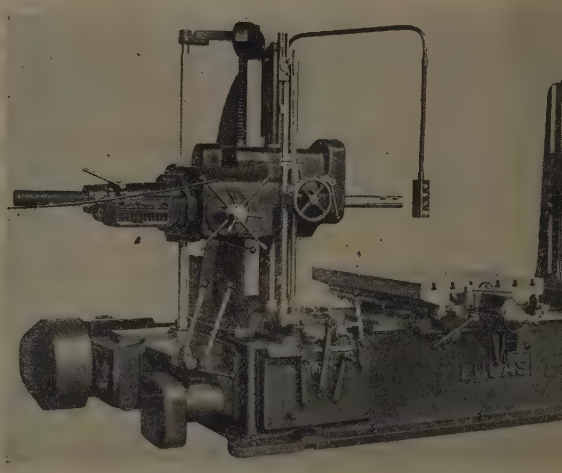
Lucas Machine Tool Co., Cleveland ..... Booth

Featured will be the "Lucas 460 Electronic" 4-inch spi horizontal boring, drilling and milling machine with e tronic controls and a four-way bed. Three-spindle mach shown here, will be exhibited along with the "460".









COLD HEADED "SPECIALS"

for Special Fastening Jobs

HERE are a few of the many "special" headed and threaded fasteners produced by "National" to solve special fastening problems. Made by the cold headed, upset process, these parts are stronger and more economical than when produced by other methods. "National's" engineers have designed special fasteners for a wide range of industry. The group above represents parts for automotive vehicles, refrigeration, tool manufacturers, metal furniture, lighting fixtures—even prefabricated houses.

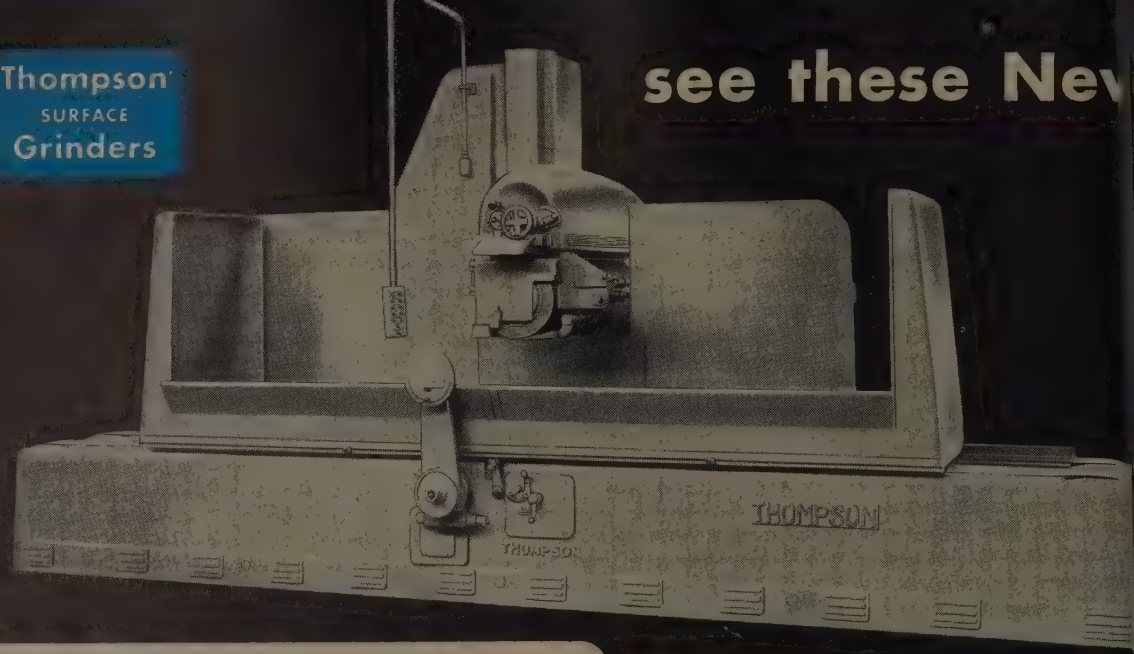
If you need a special fastener to fit the products you are making, write us. Our engineering and manufacturing departments may be able to design and make it for you, and save you money.

National PRODUCTS

THE NATIONAL SCREW & MFG. COMPANY, CLEVELAND 4, OHIO

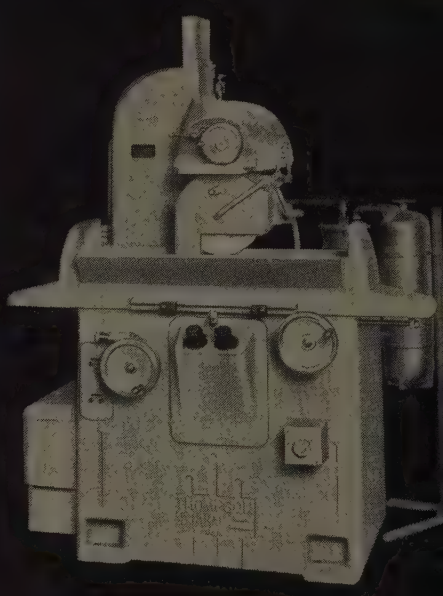
Thompson
SURFACE
Grinders

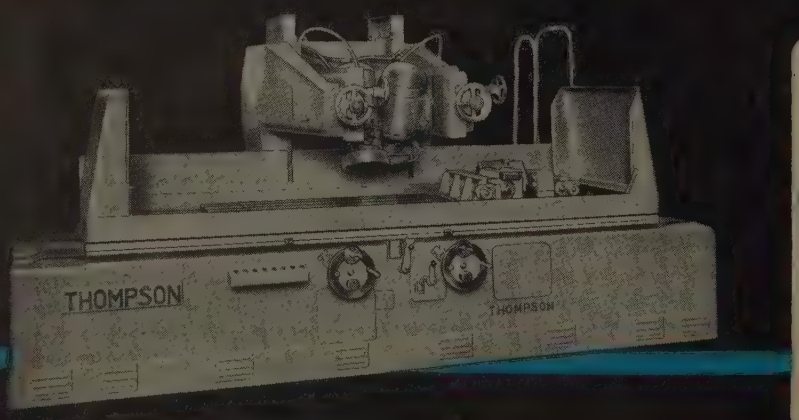
see these New



Above—Thompson Heavy Duty Type CX 36" x 48" x 120" Hydraulic Surface Grinder. Equipped with super precision spindle powered with 40 H.P. motor, this machine is capable of heavy stock removal on large areas, and it produces the high degree of finish and accuracy so necessary in the grinding of machine tool bearing surfaces. All ways are completely covered, (a *must* in good grinder design) with complete automatic lubrication, insuring long life and accuracy.

At right—Thompson Type "F" 6" x 10" x 18" Hydraulic Surface Grinder. This machine is arranged to utilize a new principle of applying coolant to the grinding wheel. All of the coolant is applied through the grinding wheel making it possible to grind exceedingly thin sections without burning or warping the work. Very fine finishes are obtained to extremely close dimensions. An outstanding advantage of this process (patented) is gained in grinding blanking dies and other metal cutting or shearing tools. No amorphus metal is present after grinding thus increasing the life of the tool between grinds.





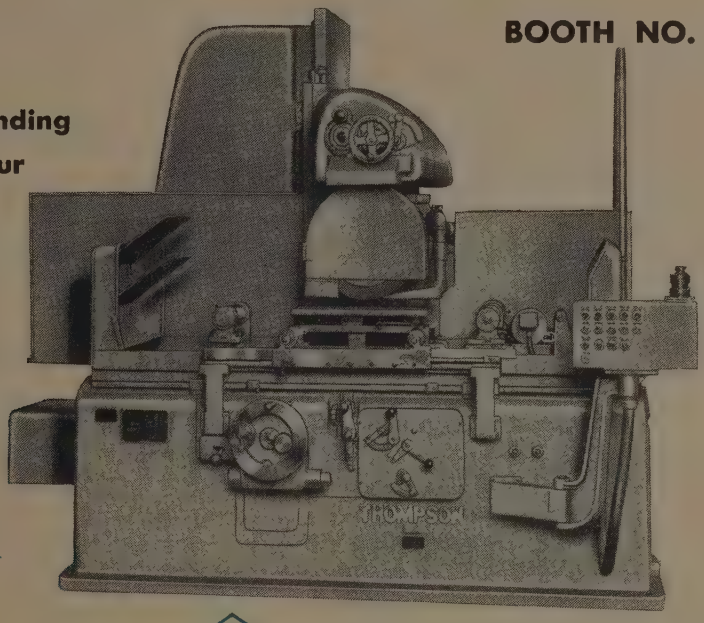
At left—Thompson 12" x 11" x 48" Dovetail Way Grinder. A new machine in the Thompson Line—new in principle, designed to eliminate the expensive job of hand scraping machine tool dovetail way bearings. The machine illustrated has capacity for a 12" wide by 48" long male or female dovetail slide, with size control from electric diamond dressing devices. Both sides of the dovetail bearing can be ground simultaneously to a predetermined dimension.

Thompson Machines
in operation *at the Show*

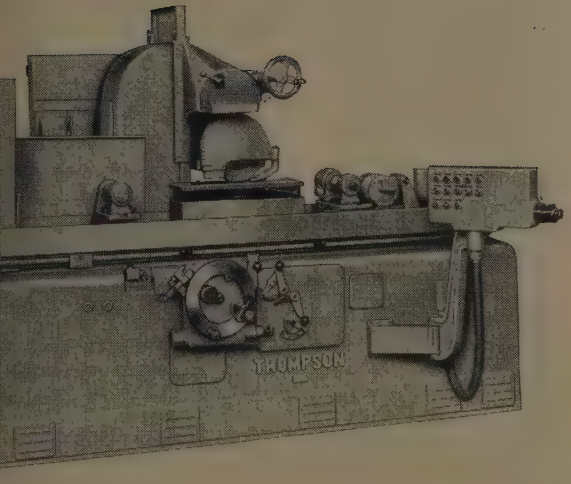
THE NATIONAL MACHINE TOOL BUILDERS SHOW CHICAGO, SEPT. 17-26

BOOTH NO. 114

There's a Thompson for Grinding every Flat Surface or Contour



Above—Thompson Type "C" 16" x 16" x 36" Truforming Grinder. The latest design of a Truforming (Crushed Wheel Grinding) machine arranged with Thread Roll Die Grinding Fixture equipped with 20" dia. x 6" face wheel driven by 30 H.P. motor. The application of this machine to the grinding of Thread Rolling Dies is revolutionizing the industry. Ground dies produce better threads with greatly increased die life. The cost of ground thread dies made with this machine is less than milled dies. When the dies are worn, they can be reground without any other processing.



At left—Thompson Type "B" 12" x 11" x 36" Truforming Grinder. A new design of a popular Truforming (Crushed Wheel Grinding) machine arranged for production grinding of intricate contours, such as flat form tools, serrated milling cutters, tangent type thread chasers and many other precision forms. This machine features automatic wheel crushing, regrinding and reproduction of crushing rolls, and automatic size control.

Before You Buy

Investigate

Thompson SURFACE Grinders

Address Dept. 11

THE THOMPSON GRINDER COMPANY, INC.

SPRINGFIELD, OHIO

1947 Machine Tool Show

Exhibitors

Lufkin Rule Co., Saginaw, Mich. ..... **Booth 302 A**
Displayed will be complete lines of precision tools, measuring tapes and rules.

Machine Design, Cleveland ..... **Booth 30**
Publication.

Machinery, New York ..... **Booth 54**
Publication.

Macklin Co., Jackson, Mich. ..... **Booth 328 D**
A miniature swing frame grinder will be in operation to demonstrate use of grinding wheels. Grinding wheels of all types will be shown, with special emphasis on tool room wheels.

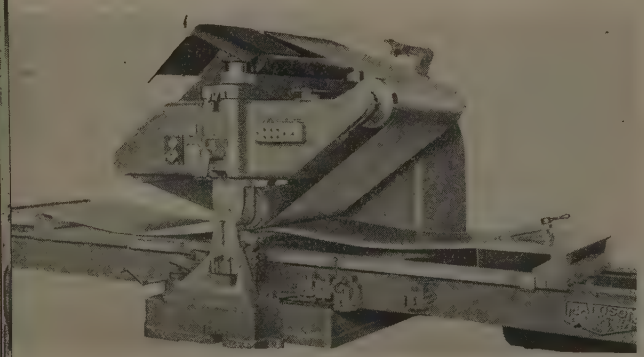
Madison-Kipp Corp., Madison, Wis. ..... **Booth 450**
Die casting machines.

Mall Tool Co., Chicago ..... **Booth 35 A**
Tools to be displayed will be: Pneumatic and electric Mallsaws, electric drills, screw drivers, sander, polishers, grinders, pneumatic and electric.

Marlin-Rockwell Corp., Jamestown, N. Y. ..... **Booth 156**
Line of machine tool bearings will be exhibited. Feature of display will be new Synthe-Seal ball bearing—a standard-dimension bearing equipped with soft synthetic rubber seals with steel cores.

Master Manufacturing Co., Hutchinson, Kans. ..... **Booth 328 H**
Master lathe converter will be featured. This equipment is self-powered and can be used as an independent unit or in conjunction with various machine tools.

Matco Tool Co., Chicago ..... **Booth 14 B**
Exhibit will consist of radii and angle dresser, universal collet head, all-angle vise, drill jig fixture, universal adjustable angle plate, surface grinding vises.



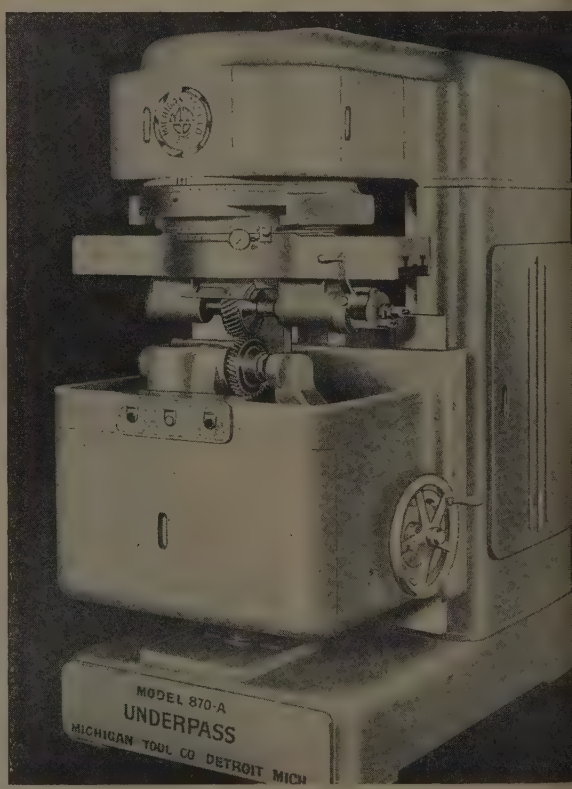
Mattison Machine Works, Rockford, Ill. ..... **Booth 4**
To be in operation are high powered precision surface grinders with hydraulic feeds, and the No. 455 wide belt sheet grinding and polishing machine, shown here. This machine is designed for proper application of factory coated abrasive belts to the grinding of stainless steel and other alloy sheets.

McGill Mfg. Co. Inc., Valparaiso, Ind. ..... **Booth 54**
All types of ball and Multirol bearings, including the new cam yoke roller bearing will be shown.

McGraw-Hill Publishing Co. Inc., New York ..... **Booth 1**
Publications.

Merz Engineering Co., Indianapolis ..... **Booth 33 F**
Special precision tools and machinery.

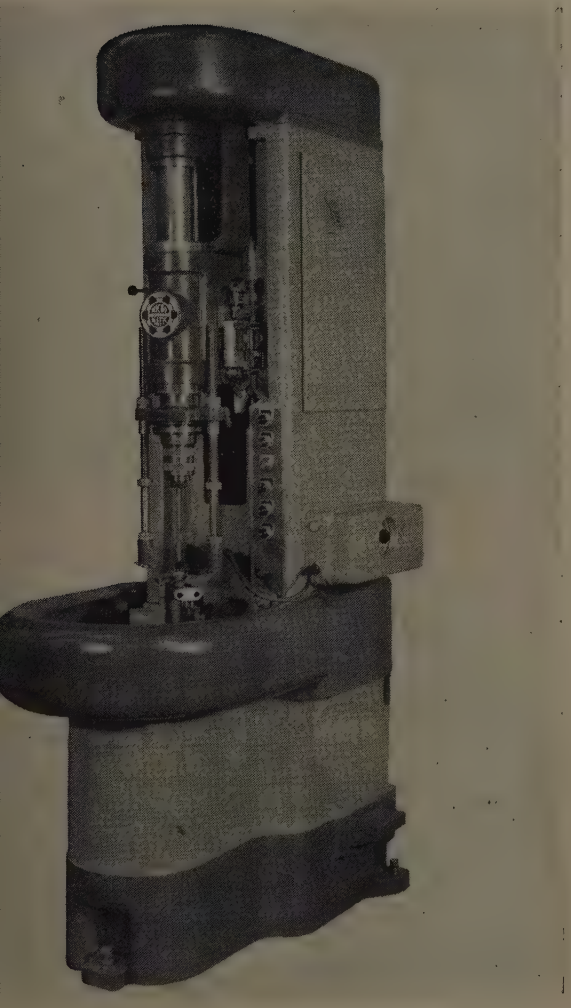
Michigan Tool Co., Detroit ..... **Booth 426**
What will amount to an entire gear cutting department will be in operation. Featured will be the model "870-A Underpass", one of a completely new line of universal high production gear finishers. It permits the selection of any one of three different methods of gear finishing: Underpass shaving, transverse shaving and "traverpass" shaving, a new development representing a combination of underpass and transverse. Both the 870 and 870-A machines are made in three sizes, handling respectively gears up to 8, 12 and 18-inches.



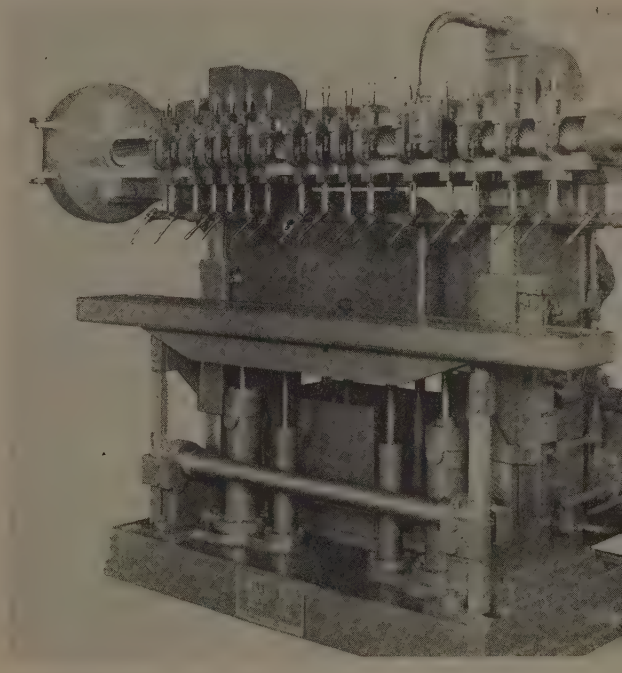
icromatic Hone Corp., Detroit .....Booth 323
khibit will feature new quill type Microhoning machines, ility tools, electronic control of automatic sizing on ma- ines. Model No. 721, shown here, is a new vertical ma- ine of quill type unit construction. This completely auto- atic machine will be tooled and fixtured to externally icrohone refrigerator pistons with an outside diameter of 125-inches. Piston size will be held to a tolerance of 0.0003- ch or less on diameter. Length of work capacity is 6 inches aximum. To permit faster stroking without increased power put and to accomplish faster, more efficient stock removal, ll weight that must be reciprocated to stroke the tool has been minimized.

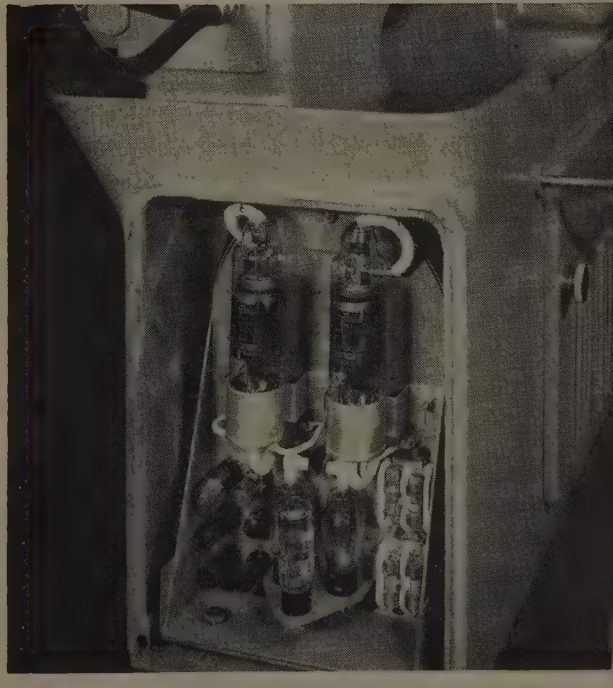
loline Tool Co., Moline, Ill. .....Booth 128
hown will be four machines representing the "Hole-Hog" ne drilling, boring, honing and special machinery. The o. HF 9 straight line driller with spiral drive to 22 drill eads will feature automatic operating cycle with push- utton control, hydraulic feed to table and automatic jump ed for such operations as pipe drilling.

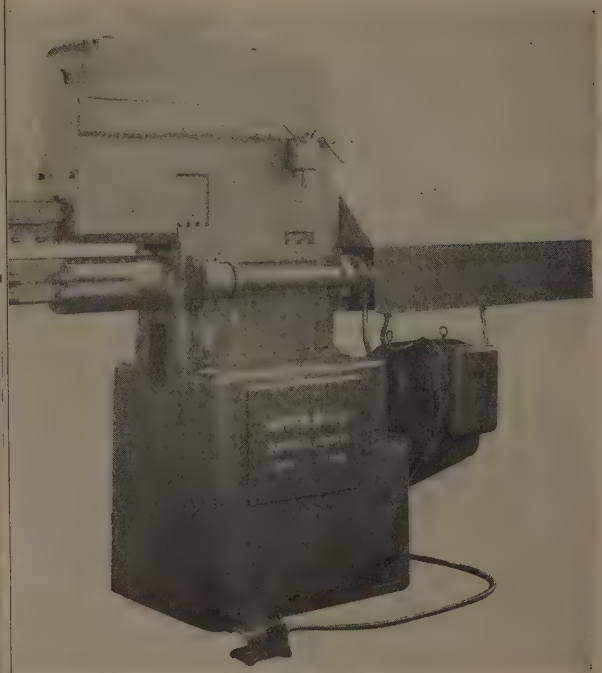
Other machines to be exhibited are a universal joint type riller, precision cylinder boring machine, two-spindle hori- zontal machine.

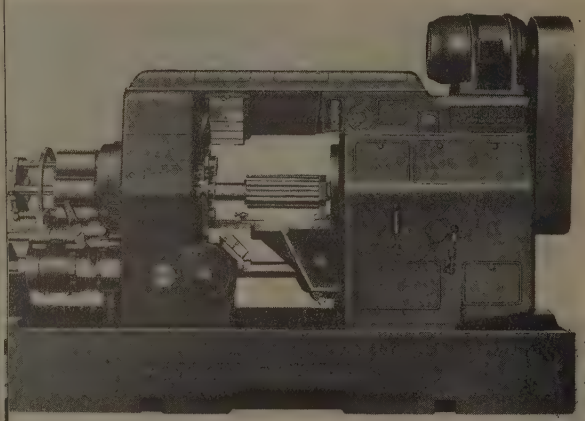


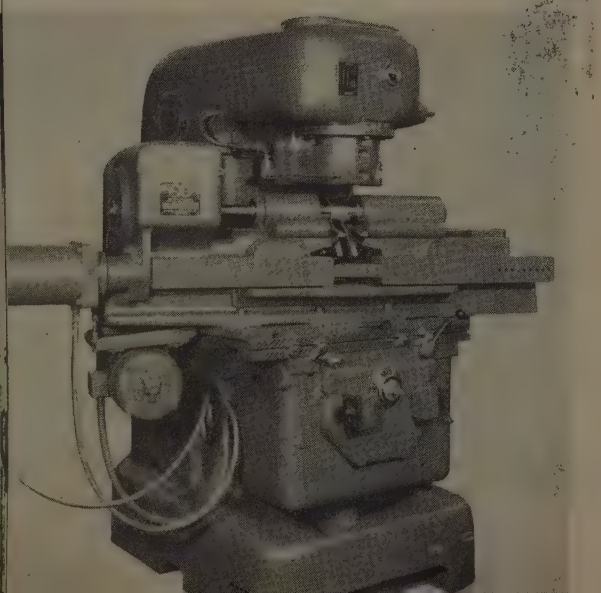
Monarch Machine Tool Co., Sidney, O. .....Booth 208
Some 32 turning machines will be demonstrated with auto- matic sizing electrical controls, high speed air controls. The new Speedi-Matic, high production hand screw machine will be equipped with an automatic electronic system for se- lecting and controlling feeds and speeds. Heart of the elec- tronic system, shown below, is located in base of machine cabinet. This control gives unit a stepless range of spindle speeds from 50 to 5000 revolutions per minute.









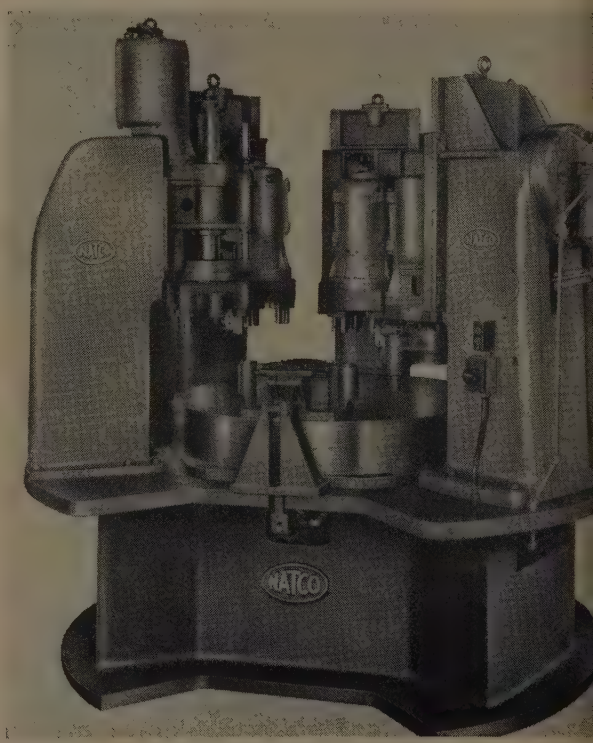


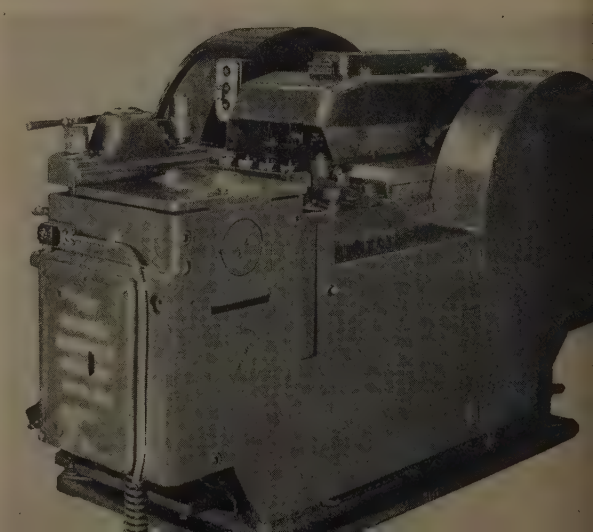
1947 MACHINE TOOL SHOW CHICAGO SEPT 17-26

Exhibitors

Morton Mfg. Co., Muskegon Heights, Mich.....Booth 120

Exhibit will feature Morton hydraulic keyway cutter and slotting machine, hydraulic high duty draw cut flash trimmer and hydraulic light type. New in design, the draw cut flash trimmer, shown here, is built in sizes from 12 to 36-inch trimming capacity for removing flash or upset from both sides of resistance or butt welded sheets, cylinders or special shapes in one operation.





athan Manufacturing Co., New York
.....Booth 658
ubricators, hydraulic pumps, boiler valves, gages.

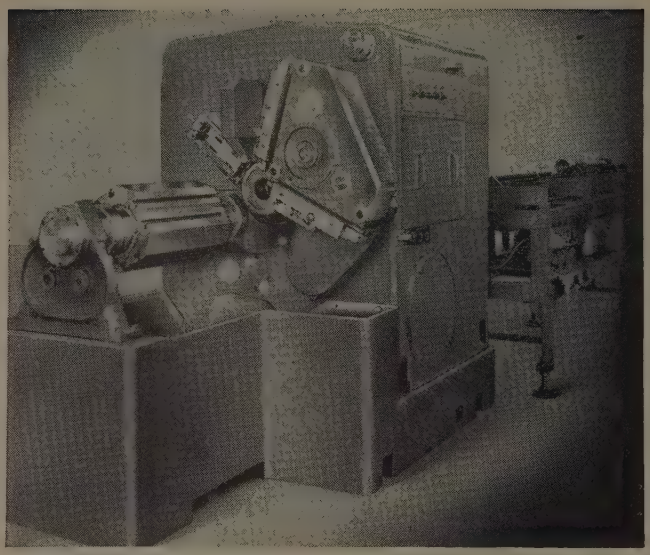
ational Acme Co., Cleveland.....
..... Booth 628
isplay will include Acme-Gridley mul-ple spindle bar automatics, single and ultiple spindle chucking machines, read and form rolling machine, Vers--ools, electrical equipment. Featured ill be the new 1¼-inch RB-6 spindle ar automatic, shown here. Design of is machine eliminates all levers and ikages in favor of direct contact for de controls. Broader use of attach-ents will make possible operations on e automatic that were heretofore done one secondary equipment.

ational Automatic Tool Co. Inc., Richmond, Ind. .....Booth 4
isplay will include light sensitive ulti spindle tapper and driller, deep le driller, Natco A-20 Borface type A nd B, electronic machine. The Natco -65 cam feed machine, shown here, is adily made up into special station pe machines for mass production of small parts.

ational Broach & Machine Co., De-troit .....Booth 607
ear shaving machines and new ma-ine for Roto Shaving laminations of otor rotors from the rough in one op-ation will be exhibited. This is done the Red Ring Rotor Shaver, shown ere, by fine pitch high precision cyl-drical milling cutter; use of principle crossed axes shaving and diagonally traversing work across cutter.

ational Industrial Launderers & Clean-ers Association, Cleveland Booth 621

ational Machinery Co., Tiffin, O...
.....Booth 17
be shown are forging machines and olt, nut, rivet and wire nail machin-y. The 5/16-inch automatic cold nut rmer, shown here, is entirely new in rinciple. It makes high quality, single amfered, washer-faced nuts; ⅜-inch AE nuts will be produced at rate of 0 per minute. Another entirely new achine to be exhibited is the 3/16-inch hollow rivet header.



New Britain-Gridley Machine Division New Britain Machine Co., New Britain, Conn. ..... Booth 311

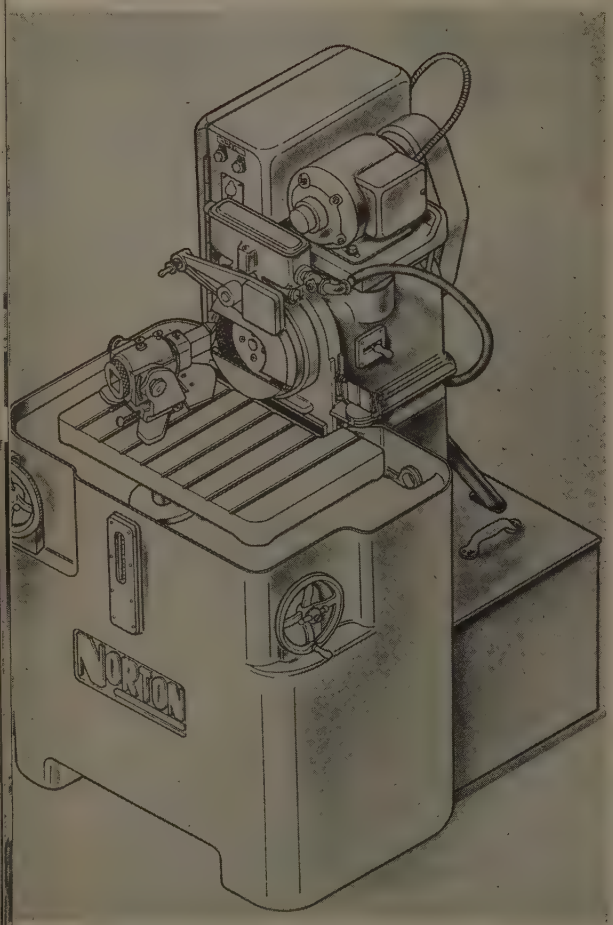
Display will have new line of 6-spindle screw machines, precision contour turning and boring machines, double end, tool rotating chucker, automatic turret lathes. Completely independent operation between main turret and cross slides is a main feature of the new automatic turret lathes. The 5-inch capacity machine has a speed range up to 1000 revolutions per minute. Single spindle automatic, model 150 is shown here. Note new air feed device which eliminates need of stock pushers and conventional stock support.

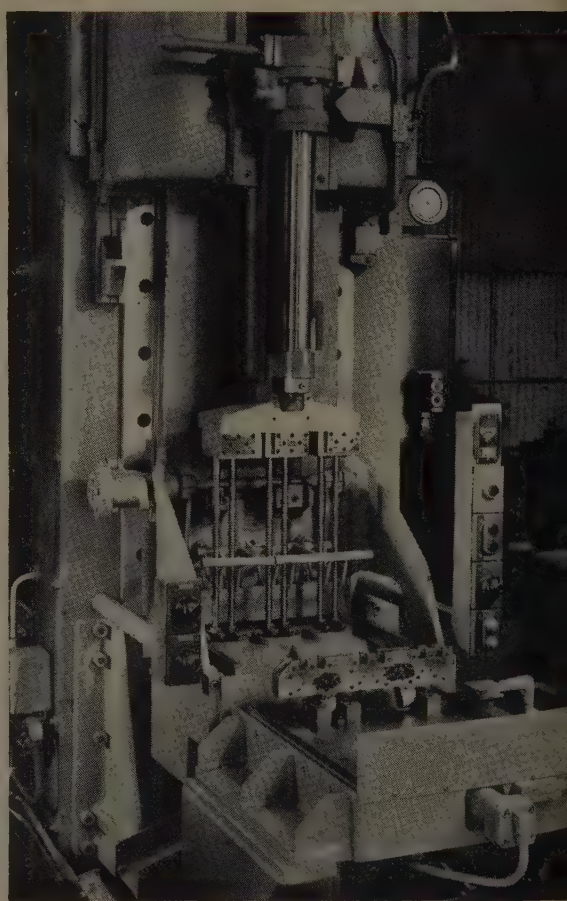
New Departure Division: General Motors Sales Corp., Bristol, Conn. ..... Booth 604

Ball bearings will be displayed, including examples of various types used in new machine tools.

1947 MACHINE TOOL SHOW CHICAGO SEPT. 17-26

Exhibitors





A. Norgren Co., Denver..Booth 37 A

luded among the items shown will a purifier type spindle lubrication it, air purifier, air governors, filters, isable high pressure hose couplings, etc.

rma-Hoffman Bearings Corp., Stamford, Conn. .....Booth 313 A

hibited will be a line of ball bearings, roller bearings and thrust bearings. Cartridge type, sealed bearings will be included.

rton Co., Worcester, Mass....Booth 5

splay will include 6 and 10 inch cylrical grinders, surface finishing maine, lapping machines, hydraulic surce grinder, cutter and tool grinder, iversal grinding machine and cam ntour grinder. Designed for cutting nvex single point tools, the No. 2 ra-Way tool grinder, shown here, is apted to boring, turning, plunge cut d form tools. Relief angles up to and cluding 15 degrees may be ground; le rake angles up to 30 degrees and back rake up to 25 degrees.

kite Products Inc., New York ..... Booth 317 G

hibit will include: Soluble oil for king up coolants for machining, lling and wet grinding; addition ents for cutting emulsion formulae; ctericides for coolants and rust preventives.

e Oilgear Co., Milwaukee..Booth 440

oaching machines and feed pumps ll be shown. The Oilgear type XM x 54 inch stroke cyclematic broaching achine, shown here, will be featured. is machine is used for single or mule broaching of internal holes, lines and special forms in automoe parts. Typical production figures machines of this type are 1200 fined broached holes in valve rocker ms per hour using six tools, and oaching 16 splines in universal joint kes at 500 pieces per hour using three tools.

K. Tool Co. Inc., Shelton, Conn.... ..... Booth 650

mplete line of milling cutters, reams, boring heads, lathe, planer and aper tools will be on display. Newly ndardized carbide tipped dual adstable face milling cutter will be featured.

1947 Machine Tool Show

Exhibitors

Oliver Instrument Co., Adrian, Mich.
..... Booth 435

Exhibit will include drill grinders, drill point thinning machine, hydraulic automatic face mill grinder, standard tool and cutter grinder and die making machines. Featured new machine is the Oliver 20-inch template tool bit grinder shown here. Holder consists of an iron frame supported at lower end by a heavy ball and socket joint; template which is a double size replica of the tool point is located at upper end.

O'Neil-Irwin Mfg. Co., Lake City, Minn. .....Booth 13 A

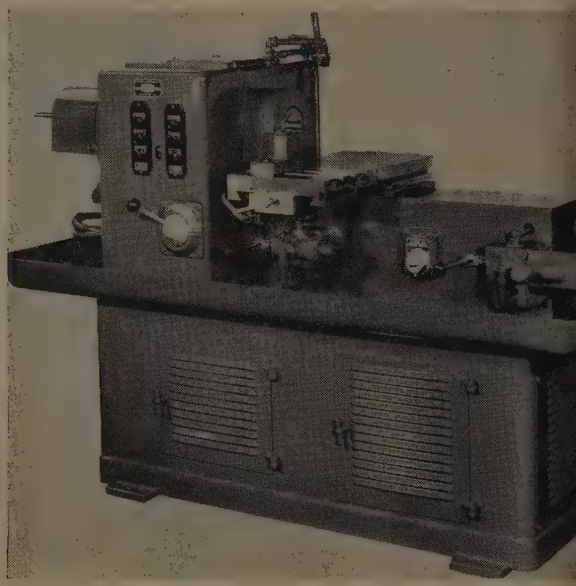
Di-Acro rod parters, benders, notching shear, brakes, radius brake and shears will be demonstrated.

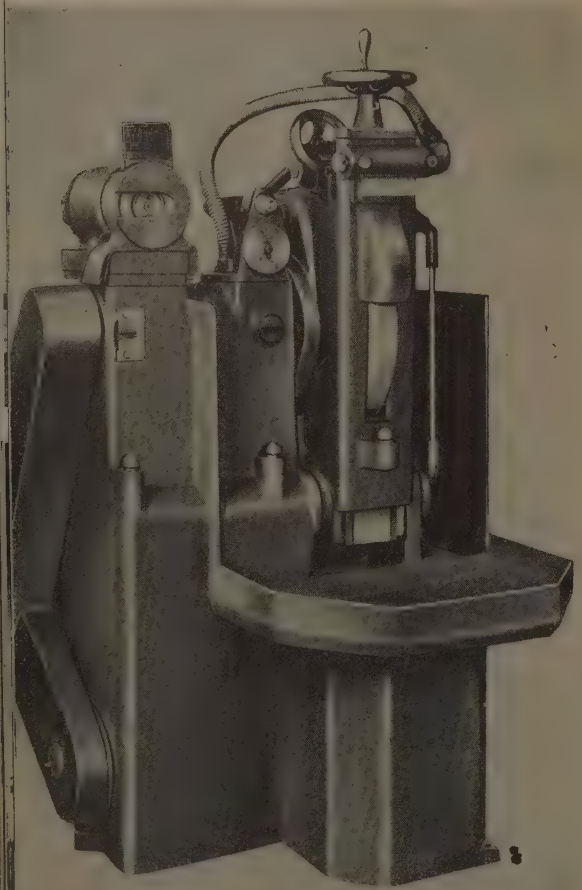
Orlandi Gear & Machine Co., Detroit
.....Booth 37 D

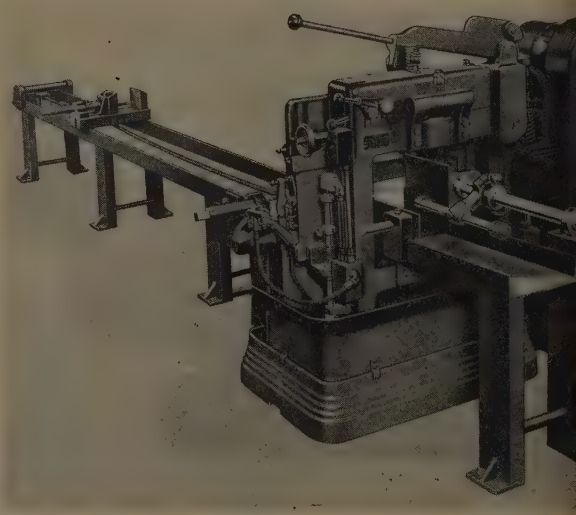
Several Orlandi gear checkers, both standard and special models, will be in operation.

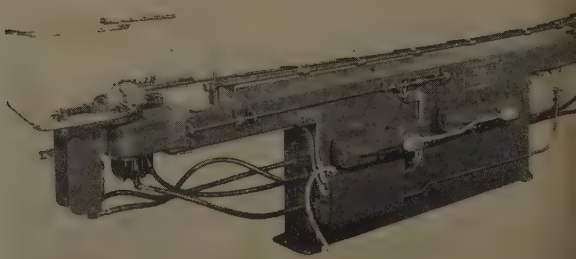
Oster Manufacturing Co., Cleveland
..... Booth 63

Eight machines will comprise the display, these to include a turret lathe and pipe and bolt threading machines. Featured machine, shown below, is the Oster No. 650 Rapiduction automatic cycle lathe for forming, facing and









er cross feed operations. Capacity h standard collet is 1½-inches; swing over cross slide is 8 inches.

ens-Corning Fiberglas Corp., To-edo, O. ..... Booth 445
nsparent plastic and glass machine l guards, gearbox covers, etc., in-sulating materials.

rker Appliance Co., Cleveland .. .. Booth 302-D
ustrial hydraulic and fluid-handling tem components will be shown. pe fitting methods will be demon-ated, using the "Toobolder", a ma-ne devised by Parker to offer all ssible problems in laying out and vicing flexible tube hydraulic or lu-brication systems.

rker-Kalon Corp., New York..... ..... Booth 243 A
hibit will include ground thread cket set screws and new size-marked ar grip socket head cap screw. Cor-t size and thread pitch are clearly ised on head of screw to eliminate necessity of gaging or miking.

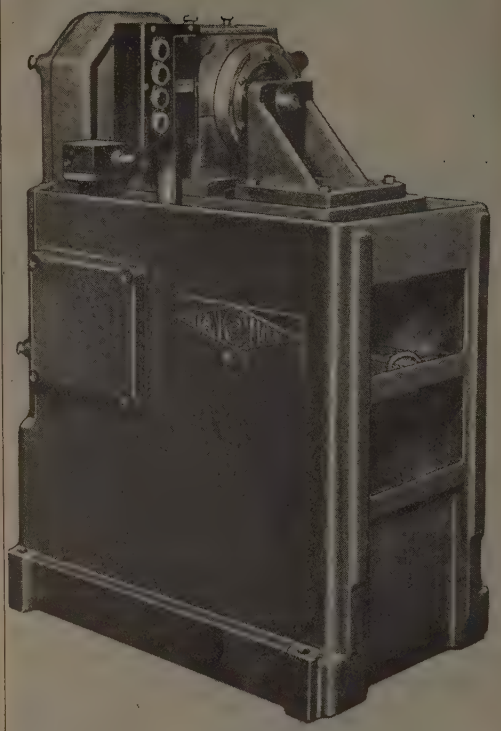
erless Machine Co., Racine, Wis.. ..... Booth 144
monstration in full automatic sawing metals will center around the 7 x 7-h automatic power saw, shown here, h mechanical pull-up. This unit is uipped, as standard, with an auto-tic length gage. Other tools in the hibit will include a plain type ma-ne and new type saw blade grinder.

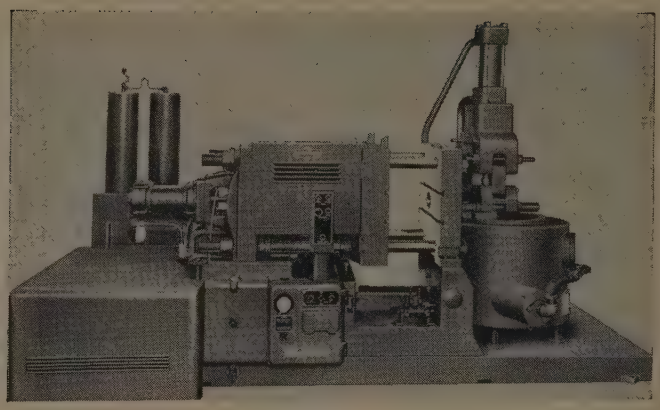
nton Publishing Co., Cleveland . .....Booth 30
Publications.

ysicists Research Co., Ann Arbor, Mich. .....Booth 563
ur new quality control instruments are to be exhibited.

es Engineering Co. Inc., Aurora, ll. .....Booth 18
size ¾ full automatic, hydraulically-ntrolled, tube bending machine will on display. Machine, shown here, is equipped for furniture bending.

neer Pump & Mfg. Co., Detroit . .....Booth 35 F
mplete and diversified line of im-ller type and positive displacement pe pumps for circulating coolants, oricants and abrasive liquids for neral machine tool and industrial use will be shown.





1947 MACHINE TOOL SHOW CHICAGO

Exhibitors

Plan-O-Mill Corp., Hazel Park, Mich. ..... Booth 408

Featured machine will be the Plan-O-Mill No. 1 planetary milling machine, shown here. Part itself does not move; the revolving cutter is fed around the work, making it possible to handle large and cumbersome parts easily. Auxiliary equipment and tools will also be shown.

Portman Machine Tool Co. Inc., New Rochelle, N. Y. ..... Booth 442

One horsepower size hydraulic variable speed transmission will be on display. Dimensions of the unit are 9¼-inches high, 11 inches overall length including input and output shaft lengths, 7 inches wide, with ¾-inch diameter shafts.

Potter & Johnston Machine Co., Pawtucket, R. I. ..... Booth 43

Ten automatic turret lathes will be demonstrated. To be featured are standard and high speed 3U Speed-Flex turret lathes, one operating on aluminum subject, the other three active automatics on cast iron parts.

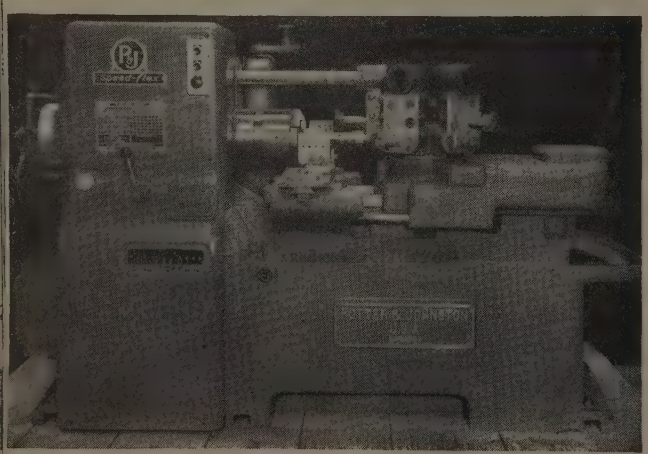
The standard 3U is a small-size machine developed for machining castings and forgings up to 6 inches in diameter. Weighing 5000 pounds, it has spindle speeds ranging from 73 to 1445 revolutions per minute. High speed model has full speed range from 104 to 2068 revolutions per minute.

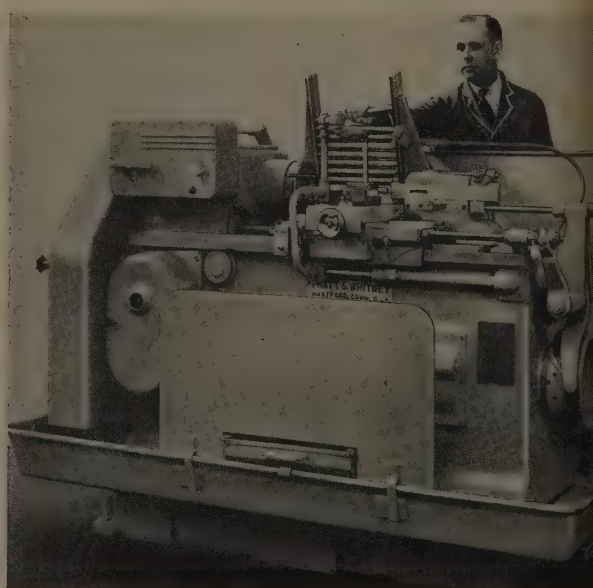
Pratt & Whitney Division, Niles-Bement-Pond Co., West Hartford, Conn. ..... Booth 55

Machine tool display will include two Keller machines, group of Pratt & Whitney die sinkers, precision toolroom lathes, two automatic lathes like one pictured, precision jig borers, vertical shaper demonstration, thread milling and hobbing demonstration, vertical surface grinder, bench precision machine tool equipment. There will also be a demonstration of grinding teeth of large precision gears by the generating process without use of masters, forms or templates.

Precise Products Co., Racine, Wis. ..... Booth 37 C

Precise-40 portable electric handtool will be featured along with the Cool-flex flexible shaft attachment and Vari-Speed lathe. Other special machine units will be a commutator under-cutter and a wire stripper.





rolator Products Inc., Newark, N. J.
.....Booth 328 B
andard units used for oil lubrication
well as hydraulic oil circulation on
machine tools will be shown.

acine Tool & Machine Co., Racine,
Wis. .....Booth 443
Metal cutting-off machines.

& D Toolholder Co. Inc., Paterson,
N. J. .....Booth 657
Removable bit toolholders.

eed-Prentice Corp., Worcester, Mass.
.....Booth 40
ew No. 2 die casting machine, shown
re, will be featured. Designed for die
sting lead, tin or zinc base alloys,
e new machine offers a large casting
ea with die plates 38 x 36 inches and
ace between bars 24 x 24 inches.
xteen pounds of zinc may be cast at
00 pounds per square inch pressure.

eeves Pulley Co., Columbus, Ind.
.....Booth 317 F
test developments in variable speed
ntrols will be shown, with special
nphasis on mechanical and automat-
controls for reducing costs and in-
easing production. Six variable speed
units will be in operation.

ehnberg-Jacobson Mfg. Co., Rock-
ford, Ill. .....Booth 233
splay will consist of drill and tap
nits, special 2-way horizontal drilling,
oring, facing and tapping machine,
tomatic centering machine, standard
tomatic index table, special needle
aring assembly machine. No. 25 drill
it has clutch and pickoff gears on
e feed; feed clutch eliminates the
cessity of starting and stopping mo-
r at each cycle. Change of spindle
eeds is accomplished by different
mbinations of sheave pulleys and
spindle drive gears.

eid Brothers Co. Inc., Beverly, Mass.
..... Booth 456
Surface grinders.

eliance Electric & Engineering Co.,
Cleveland .....Booth 302 C
nown will be a new line of squirrel-
ge alternating current "precision-
red" motors for machine tool drives.
ozen motors ranging from 1 to 200
rsepower will illustrate design. Co-
atured will be a completely arranged,
ackaged electrical transmission sys-
m for machine tool operation provid-
g stepless speed changes over an in-
finite range.

epublic Drill & Tool Co., Chicago
..... Booth 317 C
Twist drills and tools.

1947 Machine Tool Show

Exhibitors

Rivett Lathe & Grinder Inc., Boston . . . . . Booth 28

Precision toolroom grinder; toolroom, cabinet and cabinet turret lathes, external grinder, universal grinder, precision screw cutting lathe and production accessories will be shown. The No. 1020 R precision toolroom lathe, shown here, is capable of turning work up to 10 inches in diameter and 20 inches long, and of threading to American and English standards by manipulation of dial only.

Rockford Machine Tool Co., Rockford, Ill. . . . . Booth 526

Machines to be featured are the new precision stroke Hy-Draulic shapers, heavy duty double-housing and open-side shapers and planers, high speed shaper-planer. Built in 36 and 48-inch stroke sizes, the new Rockford Hy-Draulic slotter shown here, has high ram stroke speeds, infinite speed adjustment, overall ease in set-up and operation, and hydraulic feeds.

Rodgers Hydraulic Inc., Minneapolis . . . . . Booth 64

Roller Bearing Co. of America, Trenton, N. J. . . . . Booth 13

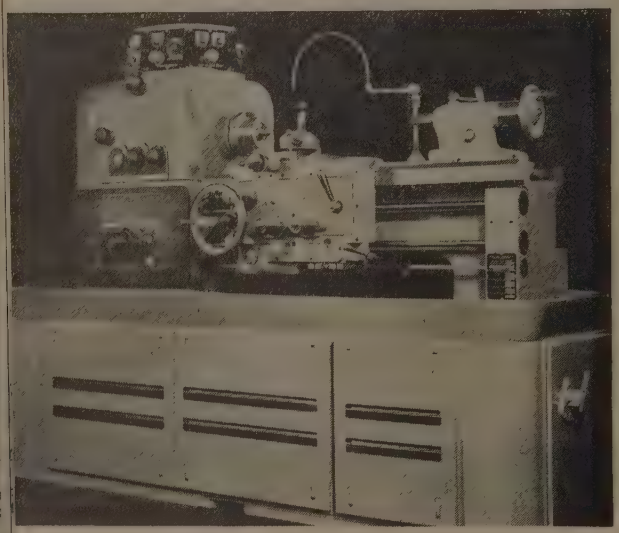
Exhibit will consist of needle bearings, aircraft bearings, roller followers, cam followers, heavy duty bearings and solid roller assemblies.

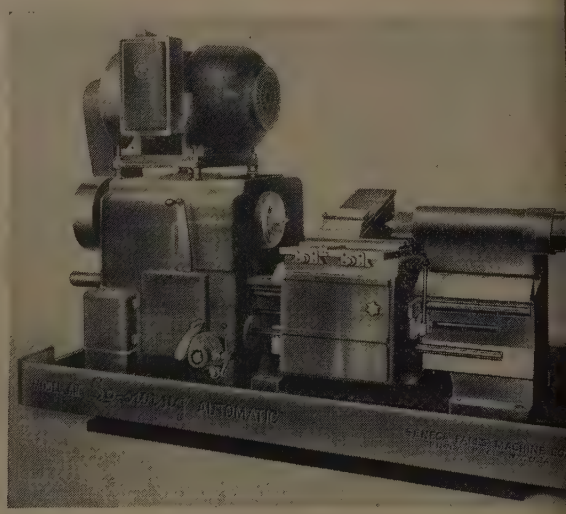
Ross Operating Valve Co., Detroit . . . . . Booth 313

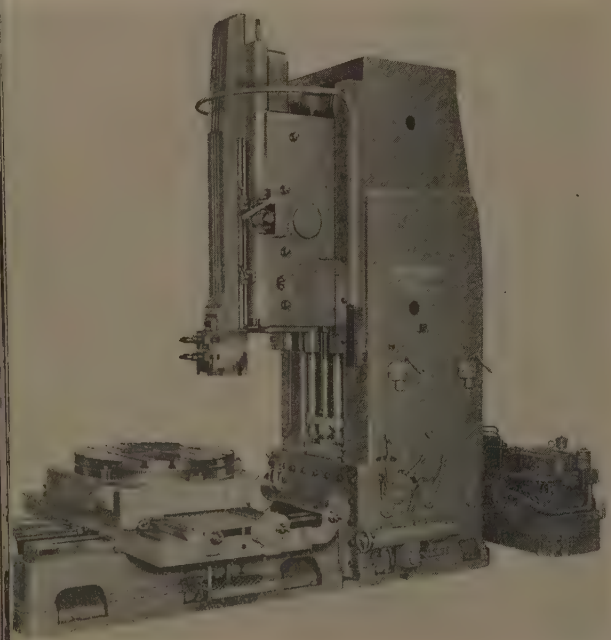
Compressed air operating valves

Royal Oak Tool & Machine Co., Royal Oak, Mich. . . . . Booth 34-C

Grinder, mounted on machine bases with D-S fixture will be demonstrated performing radial form relief on tools







:h as taps, reamers, counterbores, ofile mills, circular form tools, gear th rounding cutters, center drills etc. ols, with or without centers, may be ground.

orge Scherr Co. Inc., New York ..... Booth 663
ngle purpose optical comparator, olmakers' microscope will be featured ng with gear testers, contour measng projector, inspection unit, binocu- microscopes, illuminated inspection gnifiers, magnetic chuck adapters and other measuring instruments.

o. T. Schmidt Inc., Chicago, Booth 647
operation will be a hydraulic mark- machine fitted with a chute feed marking round parts on a produc- basis. This machine also may be used for marking flat surfaces.

ew Machine Publishing Co., Inc., ochester, N. Y. .....Booth 48
Publications.

eca Falls Machine Co., Seneca alls, N. Y. .....Booth 3
omatic Lo-Swing line of lathes and ling and centering machines will be ibited. Model AR Lo-Swing shown e, features instantaneous tool relief trol mechanism which permits re- sing rotation of feed mechanism at time during machine cycle, sim- ed changeover mechanism, positive control, increased rigidity. Car- e feed of the new lathe is by rack pinion, permitting unlimited car- riage travel.

erance Tool Industries Inc., Sagi- tw, Mich. .....Booth 33 B
bit will include both displays and rating examples of Midget and Jun- mills, both high speed steel and ide, tube deburring cutters, coun- nks, drill-reamers, carbide files, and files and rasps, Micro-mills.

field Corp., Dayton, O. and Mur- ey Machine & Tool Co. Division, troit .....Booth 202
hine tools, gages, precision meas- instruments, taps, dies, keyway rs, threading tools and tooling, d chasers, die heads and collap- taps will be exhibited. The Shef- Measuray, shown here, provides contact continuous or spot check- f thickness of various materials at speed of light. Operating with a combination of x-ray and elec- s, the instrument holds accuracy etter than 1 per cent of material being checked.

1947 Machine Tool Show Chicago Sept 17-26

Exhibitors

Sidney Machine Tool Co., Sidney, O. ..... Booth 16
Engine lathes, bed stand with bed section revolving on trunnions, carriage, apron-gearbox with stand, stand with revolving plastic herringbone gears and headstock transmission will constitute the display. A 16 x 54-inch tool room lathe, to be featured, will have 32 spindle speeds with preselective dial control, automatic lubrication to all units.

Size Control Co., Chicago, Ill. Booth 401
Exhibit will include centerless lapping machines, plain plug and thread gages of various materials, truncated set plugs, plain and thread rings, thread wires, gear wires and special gages. Webber gage blocks, Ames dial indicators, surface analyzer and comparator on lapping machines.

SKF Industries Inc., Philadelphia ..... Booth 666
Shown will be precision anti-friction bearings designed for metal cutting machines equipped with carbide-tipped tools. Special mountings will demonstrate the extreme rigidity and cutting accuracy provided by precision bearings. Shown for the first time publicly will be an oil mist lubricator designed to lengthen life of spindle bearings and save on lubricants. The lubricator will serve as many as 12 machines.

Skinner Chuck Co., New Britain, Conn. ..... Booth 638
Display will consist of various types of chucks, rotating and nonrotating air cylinders, crank handle milling machine and other types of vises, two and three-way solenoid valves. The new aluminum high speed rotating air cylinders are made from aluminum alloy forgings, and are furnished in sizes 4½ to 12 inches in diameter.

Smith & Mills Co., Cincinnati . Booth 665
Shown will be a redesigned 25-in. shaper with new patented, slotless type ram. Several Hisey grinders and buffers will be included in the display.

Socony-Vacuum Oil Co. Inc., New York ..... Booth 33

Springfield Machine Tool Co., Springfield, O. ..... Booth 436
Engine lathes, spindle and axle boring machines, bench straightening presses, vertical hydraulic grinders, special machinery.

Square D Co., Ind. Controller Division, Milwaukee ..... Booth 678
Display will include new items of power distribution and electrical control devices. New type electronic resistance welder control will be featured.

Standard Oil Co. (Indiana) . Booth 40 B
Exhibit will include complete line of cutting oils, coolants, drawing and stamping compounds, hydraulic fluids, lubricating oils and greases.

Staples Tool Co., Cincinnati . Booth 47 F
Complete line of Carboloy-tipped circular and single point tools will be shown as well as expansion reamer.

L. S. Starrett Co., Athol, Mass. Booth 200
Mechanics hand precision tools, dial indicators, hand and power hack saws, band saws for cutting metals, wood and plastics, steel tapes and precision ground flat stock will be shown.

Stearns Magnetic Mfg. Co., Milwaukee ..... Booth 677
A feature of the display will be the new magnetic disk brake for fractional horsepower motors. This equipment has a torque rating of 2 pounds foot. Stearns magnetic clutches and clutch-brakes in single and multiple disk construction will also be shown.

STEEL, Cleveland ..... Booth 30

Sterling Bolt Co., Chicago . Booth 54 A
Bolts, nuts, screws.

D. A. Stuart Oil Co., Chicago ..... Booth 317 L
Exhibit to focus attention on production problems solved with Stuart oils.

Sundstrand Machine Tool Co., Rockford, Ill. (Hydraulic Division) ..... Booth 20
Automatic lathes, hydraulic transmissions and pumps, closed circuit and constant displacement pumps, standard hydraulic equipment will comprise display. Featured will be the Triple Rigidmil, shown here, with three adjustable 25 horsepower spindle heads, two of which are horizontally opposed, the third is in a vertical position.
Speed range for each head is in a 3 to 1 ratio; speed changes are made by means of pick-off gears. Table feed rate ranges from ½ to 50 and rapid traverse rate is 300 inches per minute.

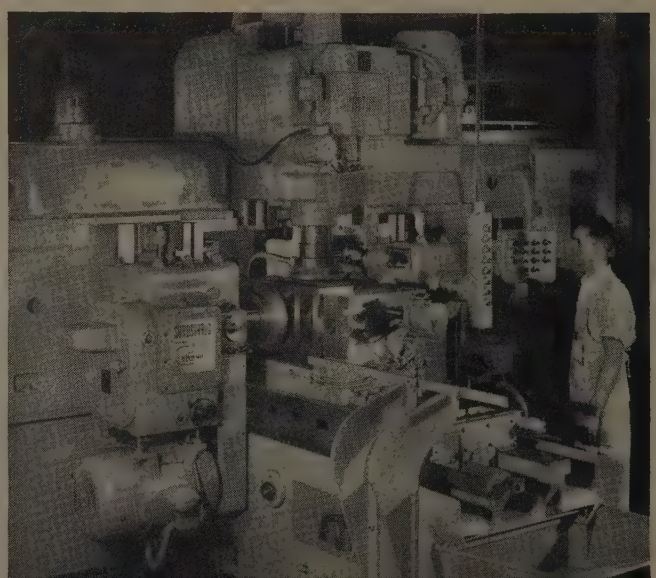
Sun Oil Co., Philadelphia . . . Booth 64
Exhibit will consist of fountain display of new grades of "Sunicut" cutting oil made with "Petrofac"; display showing how lubricating oils are tested for resistance to corrosion and sludging; and a "Service Station" where machine tool exhibitors may obtain cutting oils and lubricants for machines on display.

Super Tool Co., Detroit . . . . . Booth 67
Complete line of carbide tipped cutting tools, both standard and special, will be displayed together with ejector type tools, threading tools, reamers, boring tools, centers, milling cutters, end mills, saws, counterbores, solid carbide drills, tipped drills and tool bits.

Synthane Corp., Oaks, Pa. . . . Booth 34
Display will feature Synthane laminated and molded-laminated products.

Taft-Peirce Mfg. Co., Woonsocket, R. I. ..... Booth 60
Several new developments in the field of precision grinding will be shown and the "CompAIRator", an air gage of new and improved design, will be demonstrated publicly for the first time. Chucks, gages and tool room specialties also will be on display.

Taylor & Fenn Co., Hartford, Conn. . . .. Booth 62
Machine tools and special machinery variable speed drilling machines.



1947 Machine Tool Show

Exhibitors

Texas Co., New York . . Booth 13 C
display device will show cutting
lants and hydraulic oils flowing
ough illuminated lucite channels,
h strips of metal supported in a film
il to show their protective qualities.
gal Oils R & O" were developed to
vent rust and varnish formation in
hydraulic systems of machine tools.

mas Hoist Co., Chicago . . Booth 33 DD
Industrial hoists.

mpson Grinder Co., Springfield,
. . . . . Booth 114
ibit will include heavy duty hy-
ulic surface grinder, Truforming
ders, type F hydraulic surface
der and the dovetail way grinder,
e 214. This machine has capacity
a 12 x 48-inch male or female dove-
slide, with size control from elec-
diamond dressing devices. Both
es of dovetail bearing can be
und simultaneously to specifications.

eadwell Tap & Die Division, Shef-
eld Corp., Dayton, O. . . . . Booth 444
Threading tools.

ken Roller Bearing Co., Canton,
. . . . . Booth 317 D
tured will be a new type of graphi-
steel known as 91140 and as ap-
d to lathe ways. Presence of free
phite, together with diamond hard
bides, provides resistance to wear
l a unique ability to retain lubri-
t. Newest designs in Timken bear-
ings also will be on display.

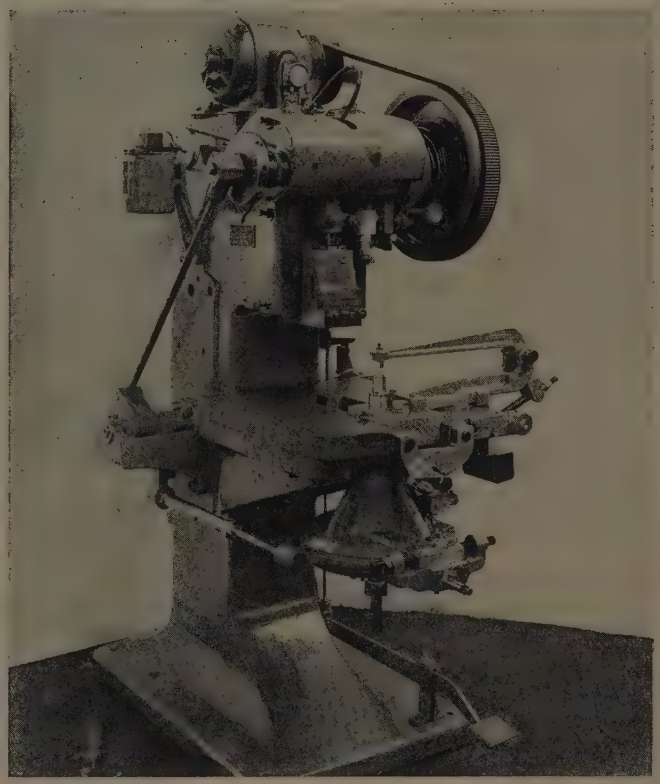
Tool Engineer, Detroit . . . Booth 35 I
Publication.

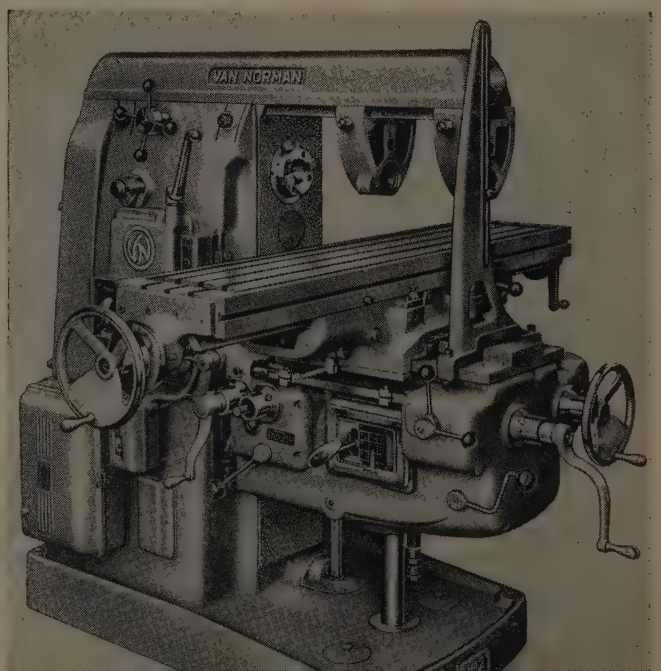
n Disc Clutch Co., Racine, Wis.
. . . . . Booth 453
Twin Disc small hydraulic coup-
g will be featured together with line
friction clutches, single and duplex
chine tool clutches, both oil and
dry type, and air-actuated clutch.

on Manufacturing Co., New Brit-
ain, Conn. . . . . Booth 125
ibit includes all types of manually-
erated chucks and chain hoists, elec-
self-centering chuck and wrench.

S. Electrical Motors, Inc., Los An-
eles . . . . . Booth 34
play will feature new U. S. motors
h variable speed up to 50 horse-
wer, also Syncrogear, horizontal and
rticlosed hollow shaft motors and
motor gears.


THOMPSON
THOMPSON




VAN NORMAN

1947 MACHINE TOOL SHOW CHICAGO SEPT 17-26

Exhibitors

S. Tool Co. Inc., Ampere, East Orange, N. J. .....Booth 236
lti-millers, multi-slide machines, de feeds, rolls feeds, stock oilers, aighteners, coil cradles, stock reels.

iversal Boring Machine Co., Hudson, Mass. .....Booth 619
ble-type horizontal boring, milling d drilling machines, accessories and precision machine aligning levels.

e V & O Press Co., Hudson, N. Y. Division of Rockwell Mfg. Co. ..... Booth 150
ature of the exhibit will be a high eed notching press, shown here. This achine, to be demonstrated at the ow, is used for notching electric mo- laminations; it operates at speeds up to 800 spm.

n Norman Co., Springfield, Mass. ..... Booth 9
total of 18 milling machines, and two n Norman oscillating radius grinders ll be shown. The No. 2 heavy col- n-type milling machine is shown bottom of opposite page. The Van rman subsidiary, Morse Twist Drill Machine Co. will exhibit a complete line of cutting tools.

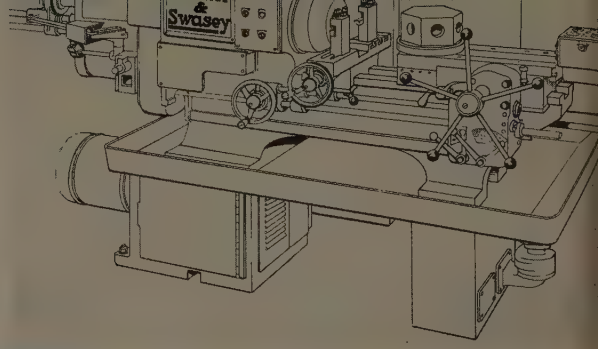
scoloy-Ramet Corp., North Chicago, ll. .....Booth 317 J
Cutting tools.

eder-Root Inc., Hartford, Conn..... ..... Booth 402
echanical and electrical counting devices will be exhibited.

ckers Inc., Detroit .....Booth 228
mprehensive line of hydraulic con- l equipment including pumps, con- l valves, control assemblies, power its and variable speed transmissions will be exhibited.

nco Corp., Detroit .....Booth 224
splay will include hob grinder, dres- r, involute checker, gear rolling in- ection fixture and Precisiondex. This st named indexing fixture incorpo- tes a ratchet and pawl arrangement indexing to fractions of a second.

allace Supplies Mfg. Co., Chicago ..... Booth 154
ydraulic, motor driven and hand- erated bending machines, tubular products



1947 MACHINE TOOL SHOW CHICAGO SEPT 17 26

Exhibitors

Warner & Swasey Co., Cleveland . . . . . Booth 309

Exhibit will consist of turret lathes, single-spindle automatic chucking machine, multiple spindle automatic, precision tapping and threading machine, scroll chucks, bar feed and collet chucks. Among the featured machines is the No. 2 ram type six-speed all geared head turret lathe, shown here. The headstock will deliver 12 spindle speeds in uniform progression with the two-speed motor. High-low clutch makes four speeds available without shifting gears.

Warner Electric Brake Mfg. Co., Beloit, Wis. . . . . Booth 328 A

Electric brakes and clutches for industrial use will be shown.

Weddell Tools Inc., Rochester, N. Y. . . . . Booth 483

Complete line of inserted blade cutters and accessories, including the new super carbide tipped tri-bit face mill will be shown.

Westinghouse Electric Corp., Pittsburgh . . . . . Booth 451

Included in equipment to be exhibited are the Life-Line all steel squirrel cage induction motor, horizontal gear motors, selenium rectifier power pack for operating small direct current motor new line of small direct current motor newly developed direct current starte oilproof push button and combinatio motor starter.

Wiedemann Machine Co., Philadelphi . . . . . Booth 3

Latest turret punch presses and repr sentative punches and dies, quic change and interchangeable will b shown. In operation will be a type R- turret punch press with gage tab which will pierce different-shaped hol up to 6 inches square in sheets up t 60 x 120 x ¼-in. This machine ha dles large sheets and plates witho conventional layout of job, in one o eration. It exerts 160,000 pounds pre sure, has a 54-inch throat, makes 6 strokes per minute and contains 12 t 32 punches and dies.

Wilson Mechanical Instrument Co., New York . . . . . Booth 45

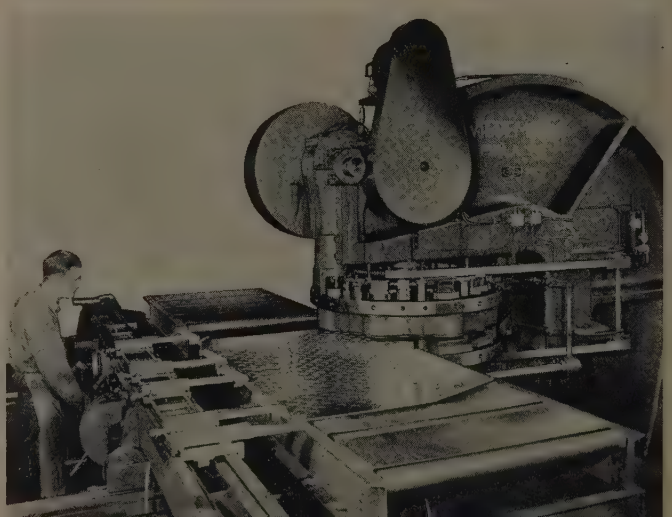
Featured equipment will be rockwe hardness and superficial hardness tes ers, the Tukon tester for determinatio of the Knoop hardness number, as we as the 136-degree diamond pyrami hardness number.

Wilton Tool Mfg. Co., Chicago Booth 35

Precision-built machinists vises will b shown.

Yale & Towne Mfg. Co., Philadelphia . . . . . Booth 12

Materials handling machinery.



It is so large we can exhibit it nowhere but in our plant!

LARGEST Drawing PRESS

For the first time, you will see how large deep drawn sections can be produced AUTOMATiCALLY through a series of successive operations by a continuous process. Manufacturing economies never before dreamed of are made possible by this revolutionary method. Visit our open house September 17 to 26 and learn more about how the originators of allsteel welded press construction are pushing back the frontiers of metal forming.

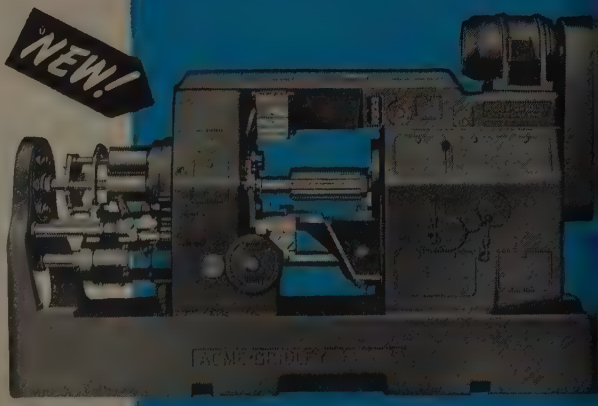
VERSON ALLSTEEL PRESS COMPANY
1355 East 93rd Street **Chicago 19, Illinois**

WELDED PRESSES

See these NEW National Acm

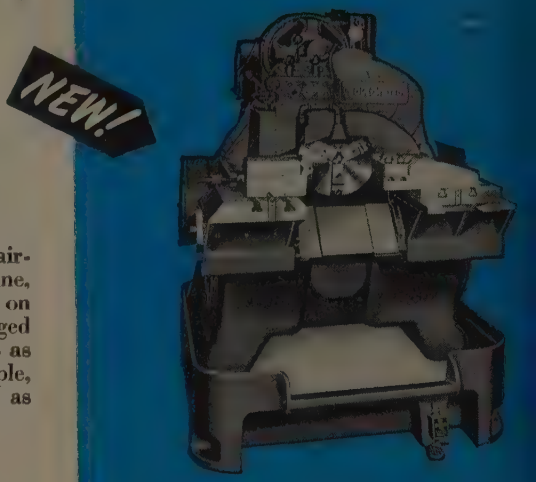
FOR LOWER COSTS ON AUTOMATIC BAR WORK

The new 1¼" Model RB Acme-Gridley Six-Spindle Bar Machine offers three basic time and moneysaving advantages: It's heavier, more powerful—for today's increased speeds and feeds. It's more versatile—will handle more operations (including many second operations)—at a lower machine investment, with less handling, lower machining costs. And it's easier to operate—to give maximum man-hour output, compensating for increases in other costs.



FOR INCREASED PRODUCTION ON CHUCKING OPERATIONS

The new Acme-Gridley 12" Chuck-Matic is an air-operated, single-spindle, automatic chucking machine, especially suited for heavy-duty, high production on castings, forgings and tubing parts. It's built rugged—and powerful—to operate at speeds and feeds as fast as carbide-tipped tools can take it. It's simple, compact, easy to operate—one man can run as many as four machines.



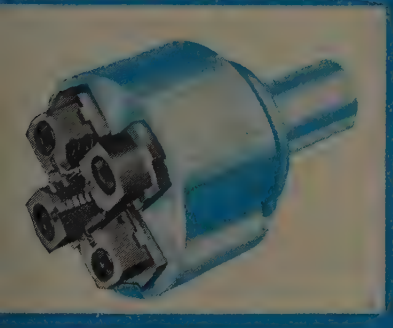
NATIONAL ACME AT THE MACHINE TOOL SHOW
ALSO WILL DEMONSTRATE 4, 6, AND 8 SPINDLE BAR AND
CHUCKING AUTOMATICS AND OTHER STANDARD PRODUCTS

roduction Profit-Builders at the Show

NEW!

FOR HIGH-SPEED PRECISION THREAD AND FORM ROLLING

The new Namco Roll-Matic is a triple-roll hydraulic thread and form rolling machine, built to cut your costs on all standard pitch threads in sizes from $\frac{3}{8}$" to $1\frac{1}{2}$". Operation is simple, dependable—and versatile. The three rolls, backed up by powerful, straight-line camming, give positive, equal pressure—resulting in smooth threads, close fit (class 3 fits are easily attainable) and no distortion, even on hollow work.



NEW!

FOR MORE ECONOMICAL THREAD-CUTTING PRODUCTION

The new adjustable-blade chasers bring even greater versatility to standard Namco self-opening Vers-O-Tool die heads. These new chasers are especially suited for shorter runs, where they minimize tool investment. Adjustable chasers cover the range of the six standard Vers-O-Tool heads for capacities from $\frac{3}{8}$" to $1\frac{5}{8}$", and are interchangeable with circular chasers, size for size. Positive adjustment for bringing the cutting edge up to proper position after each regrind—and more grinds per chaser—are outstanding advantages.

NEW!

10% MORE PRODUCTION ON ANY MACHINE

The Chronolog is National Acme's automatic, electric means of providing accurate, indisputable information on machine performance. Approved by management and labor alike, it gives a complete production record, telling why, when and for how long any operation was down during the shift. Without exception, users report a minimum of 10% increase in production after installing the Chronolog.

e NATIONAL ACME CO.

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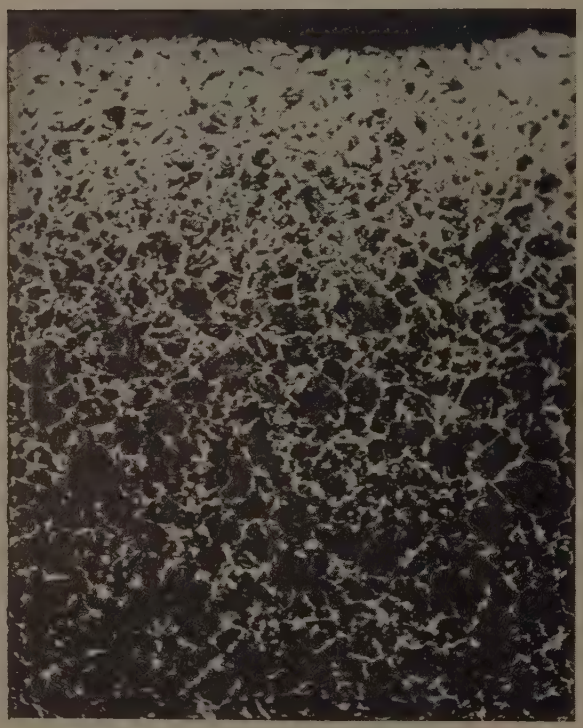
Meet us at
BOOTH 628
MACHINE TOOL SHOW
CHICAGO—SEPT. 17-26

Save the Cost of

. . . USE REPUBLI

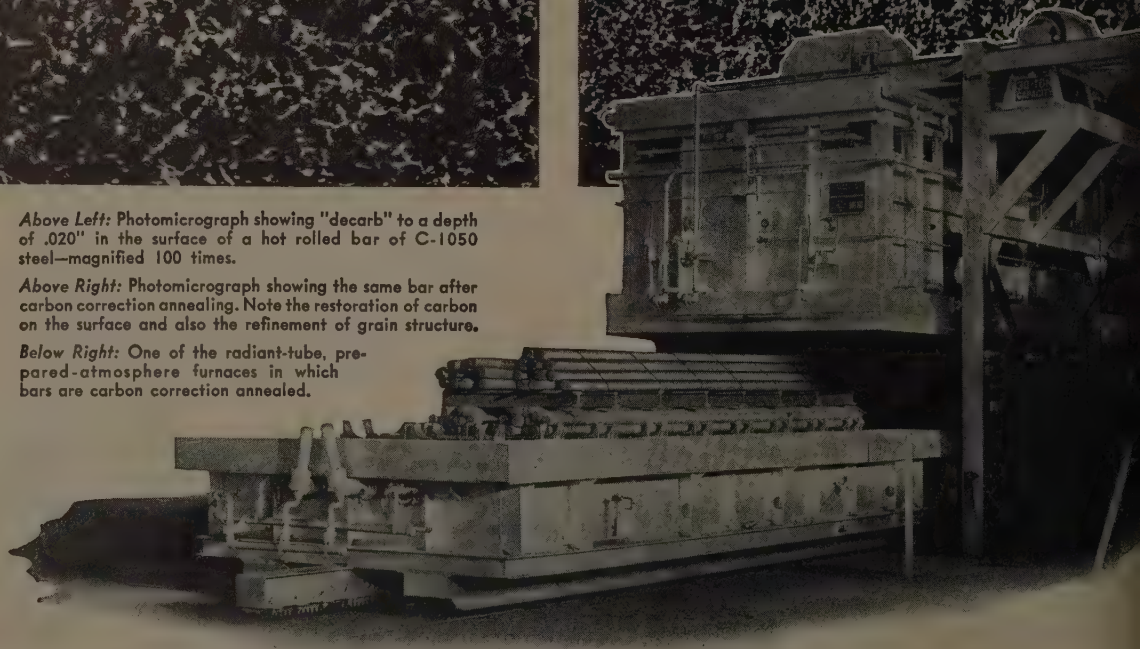
"CARBON



Above Left: Photomicrograph showing "decarb" to a depth of .020" in the surface of a hot rolled bar of C-1050 steel—magnified 100 times.

Above Right: Photomicrograph showing the same bar after carbon correction annealing. Note the restoration of carbon on the surface and also the refinement of grain structure.

Below Right: One of the radiant-tube, prepared-atmosphere furnaces in which bars are carbon correction annealed.



Removing "DECARB"

NION COLD DRAWN
CORRECTED" BARS

If you make steel parts which are heat treated to produce high surface hardness around a tough core—particularly those case hardened by high frequency induction heating—here's an easy way to cut unit production costs: Use Republic Union Cold Drawn "Carbon Corrected" Bars.

Through carbon correction annealing in prepared atmosphere, the carbon lost by decarburization during hot rolling is restored to the surface of the bars, permitting them to be used in the original cold drawn condition. Thus, the cost of removing "decarb"—which in a steel like C-1050 frequently means the removal of 20 thousandths of an inch or more—is saved.

Because the treatment includes annealing as well as carbon correction, steels such as C-1050 and C-1151, frequently used for parts requiring high surface hardness, also are substantially improved in

MACHINABILITY.

That's a quality which you will *ALWAYS* find in every Republic Union Cold Drawn Steel—whether it's Bessemer screw stock, a carburizing grade or a stainless steel. MACHINABILITY comes first at Union Drawn—has taken precedence over everything else in laboratory and mill for some 58 years.

Union Drawn metallurgists and engineers are ready to help YOU in using "Carbon Corrected" or any other Republic Union Cold Drawn Steel Bars to best advantage—to improve your product, to increase production efficiency, to cut costs. Write us.

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Union Drawn Steel Division • Massillon, Ohio
GENERAL OFFICES • • • • • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, New York

Republic

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UNION COLD DRAWN STEELS

Free-Machining Bessemer, Alloy and Enduro Stainless Steels

•

Union Cold Drawn Special Sections

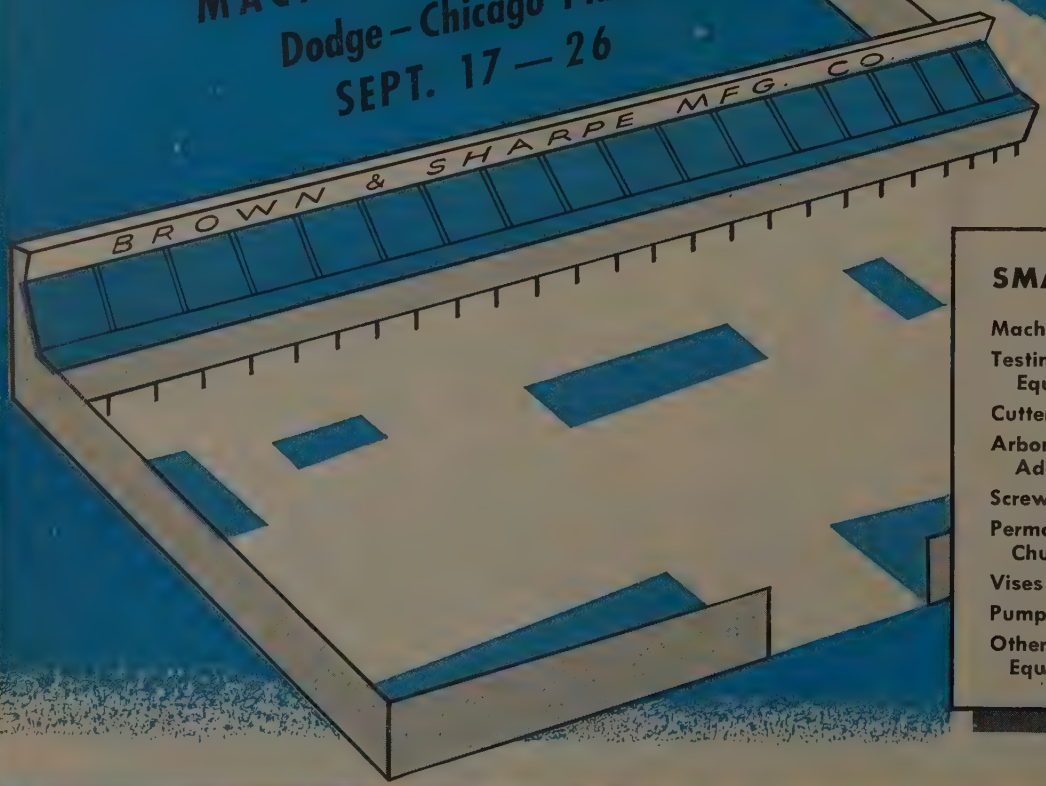
•

Union Cold Drawn and Ground Rounds; Turned and Polished Rounds; and Turned, Ground and Polished Rounds (Union Precision Shafting.)

SEE THE LATEST DEVELOPMENTS

BOOTH 505

MACHINE TOOL SHOW
Dodge – Chicago Plant
SEPT. 17 — 26

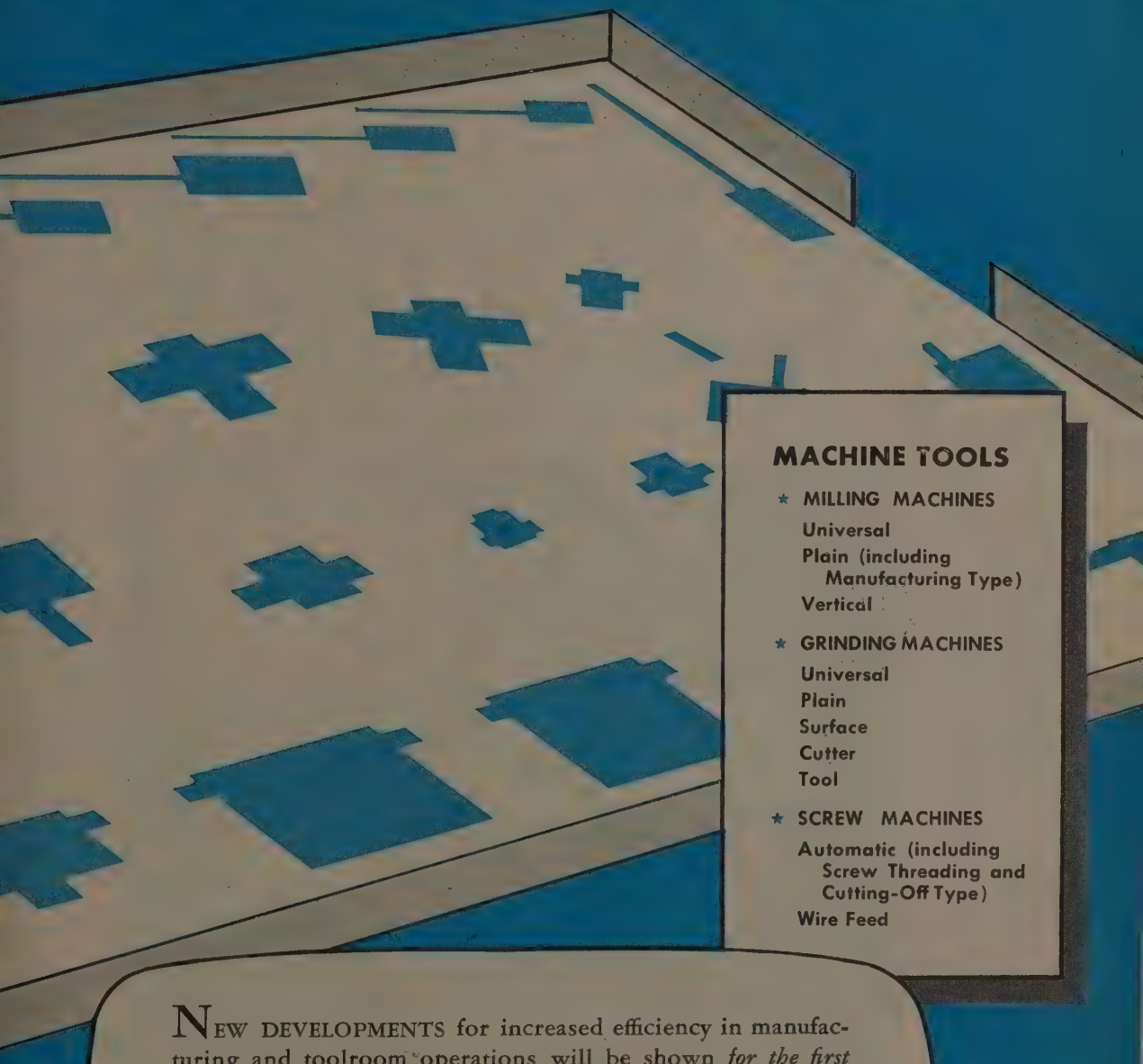


SMALL TOOLS

- Machinists' Tools
- Testing and Gaging Equipment
- Cutters and Hobs
- Arbors, Collets and Adapters
- Screw Machine Tools
- Permanent Magnet Chucks
- Vises
- Pumps
- Other Useful Shop Equipment

BROWN &

N MACHINES and TOOLS



MACHINE TOOLS

★ MILLING MACHINES
- Universal
- Plain (including Manufacturing Type)
- Vertical

★ GRINDING MACHINES
- Universal
- Plain
- Surface
- Cutter
- Tool

★ SCREW MACHINES
- Automatic (including Screw Threading and Cutting-Off Type)
- Wire Feed

NEW DEVELOPMENTS for increased efficiency in manufacturing and toolroom operations will be shown *for the first time* at Booth 505. Come, see new ideas for improving productivity per man and machine. Get "first-hand" answers to your questions. Other well-known, time-tested Brown & Sharpe Machines, Attachments and Small Tools will be displayed also . . . a good opportunity to examine and compare all their features. You are cordially invited. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.

SHARPE

B&S

now! further improved

Gulf

This plant, like scores of others, gets greater production, longer tool life, and better finishes with Gulf Lasupar Cutting Oil — one of Gulf's complete line of sulphurized cutting oils, now even further improved.

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices:

Boston · New York · Philadelphia · Pittsburgh · Atlanta
New Orleans · Houston · Louisville · Toledo

GULF INDUSTRIAL LUBRICATION

Sulphurized Cutting Oils

- **even better performance**
- **no objectionable odor**

BECAUSE of their superior performance, Gulf Lasupar Cutting Oil, Gulf Electro Cutting il, and Gulf L. S. Cutting Base are preferred by ores of shops. Now petroleum technology has ade possible further improvement in these uality oils—you get the advantage of extremely tive sulphur, without disagreeable odor!

The sulphur in these outstanding cutting oils chemically combined by an exclusive Gulf rocess so that it is uniquely active over the entire range of a cutting operation. This is highly important because the advantage derived from the sulphur in cutting oils is governed more by the amount of chemically active sulphur present than by the actual percentage of sulphur content.

Call in a Gulf Lubrication Engineer today and let him demonstrate how these improved cutting oils can help you get greater production, longer tool life, and better finishes. Write, wire, or phone your nearest Gulf office.

Gulf makes available a complete line of quality oils and greases for the machine shop

Gulf Harmony Oil WCR—the ideal hydraulic oil—and general purpose lubricant for machine tools
Gulfgem Oil—the world's finest spindle oil, Alchlor processed
Gulf E. P. Lubricants—for better protection of heavily loaded gears and bearings
Gulf Lubcote—for open gears and wire rope
Gulf Precision Grease—for better lubrication of ball and roller bearings
Gulf Soluble Cutting Oil—for machining jobs which require a soluble cutting fluid
Gulf Thread Grinding Oil—especially developed for use on automatic thread grinding machines
Gulf Super-Quench—the revolutionary dual-action quenching oil
Gulf Rust Preventives—oil and petrolatum types for every production and storage requirement
Gulf Petroleum Naphthas—for degreasing of metal parts

1, 2, 3, 4 and 6 Spindle Sensitive Drilling Machines

Single Slide and Duplex Surface Broaching Machines 5, 10, 15 and 25 ton capacity

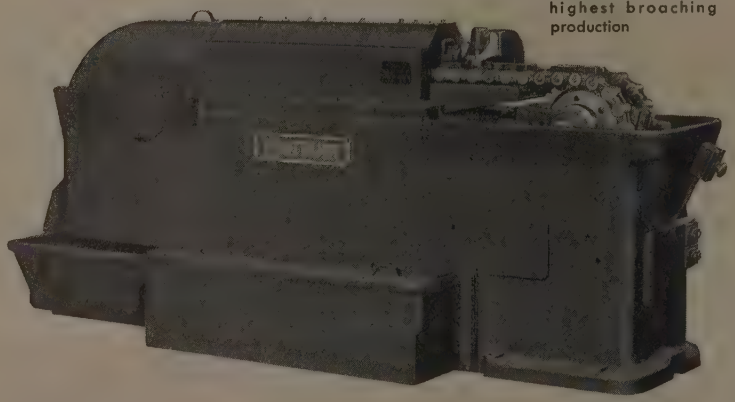
Extremely Accurate Hammond Tool Room Grinder

A TIME TESTED LINE OF MACHINE TOOLS

Engineered for Production

Stub Type Cylinder Boring Machines

Continuous Surface Broaching Machine made in 4 sizes for highest broaching production



Special Way Type Drilling, Boring, Reaming and Tapping Machine

Unique bracket type Hammond Radial Drilling and Tapping Machine

Footburt machines to be displayed and described at the Machine Tool Show are representative of a line that has been truly "Engineered for Production." Standard machines have been kept up-to-date and will drive the latest cutting tools to their full capacity. Special way type drilling, boring, reaming, tapping and milling equipment and surface broaching machines are designed around the work to produce parts at the required hourly rate. All machines are built with the usual Footburt workmanship and sturdiness. It will pay you to see this great line of machines.

THE FOOTE-BURT COMPANY

13000 St. Clair Avenue • Cleveland 8, Ohio

FOOTBURT

Production MACHINE TOOLS

Walker-Turner light

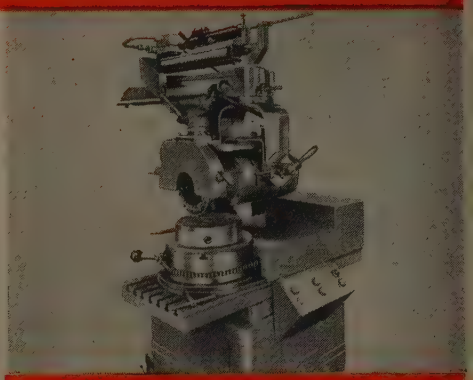
BUILT WITH ENGINEERING KNOW-HOW

Engineering skills developed through association with industries' problems give Walker-Turner unparalleled know-how—unquestioned leadership—in the manufacture of light-weight, low-horsepower Machine Tools . . . machines that are low in cost, and are solving production-cost problems in thousands of industrial plants.

Walker-Turner Machine Tools insure flexibility of operation: Plants using Walker-Turner Machine Tools are prepared for quick production set-up changes at minimum cost. And in the shop where space is a premium, these machines can be added without disrupting shop layouts.

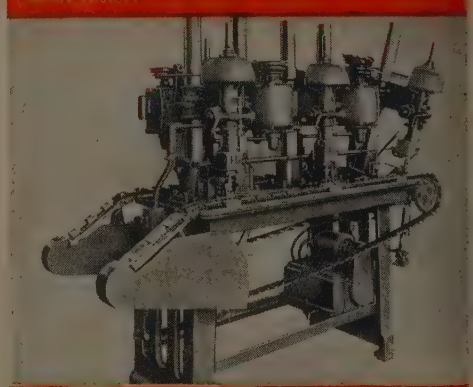
Walker-Turner Machine Tools Replace Costly Machines: Walker-Turner Machine Tools are performing many operations formerly done on costlier and heavier machines and performing these operations more efficiently at greater production rates and less cost. In replacing heavier and more expensive machines, users have answered the oft-quoted question, "Why use a 10 ton truck to do the work of a 1 ton truck?"

Walker-Turner Machine Tools are low in cost: Because of their wide range of speeds for a wide range of materials . . . because of the versatile work performed, Walker-Turner Machine Tools are profitable investments. They're light but sturdy in construction, built to last a long time. Walker-Turner Machine Tools pay for themselves in a few weeks of operation.



GROOVING OPERATIONS 4 TIMES FASTER

The L. E. Wellman Company, Cleveland, O. built new special set-up to take standard Walker-Turner Radial Cut-Off Machine and performed grooving operations on separate parts four times faster.



TAPPING PRODUCTION INCREASED 500%...

Read Engineering Co., Springfield, Mass. Operating this conveyor set-up using five standard Walker-Turner 14" Drill speeds to handle two pieces at once and increases production 500% over conventional methods.

TWENTY-FIFTH YEAR
1922 1947

walker-Turner
COMPANY, INC.
PLAINFIELD, N.J.
U.S.A.

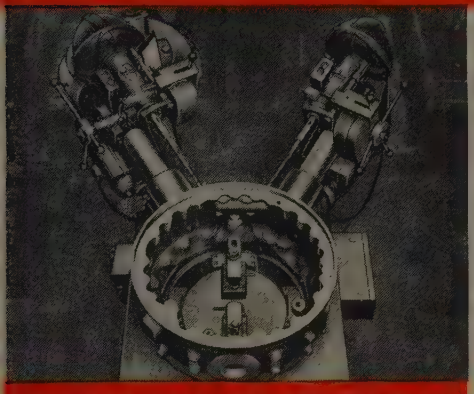
308Z

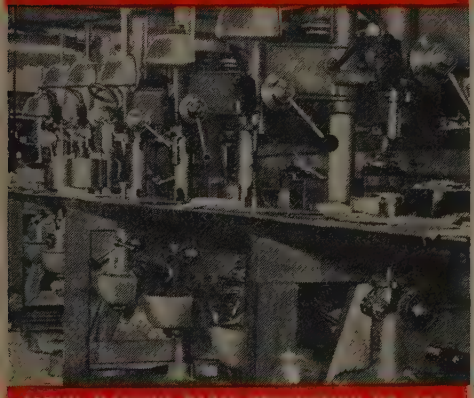
SOLD ONLY BY AUTHORIZED INDUSTRIAL MACHINERY DISTRIBUTORS

MACHINE TOOLS

machine tools . . . .

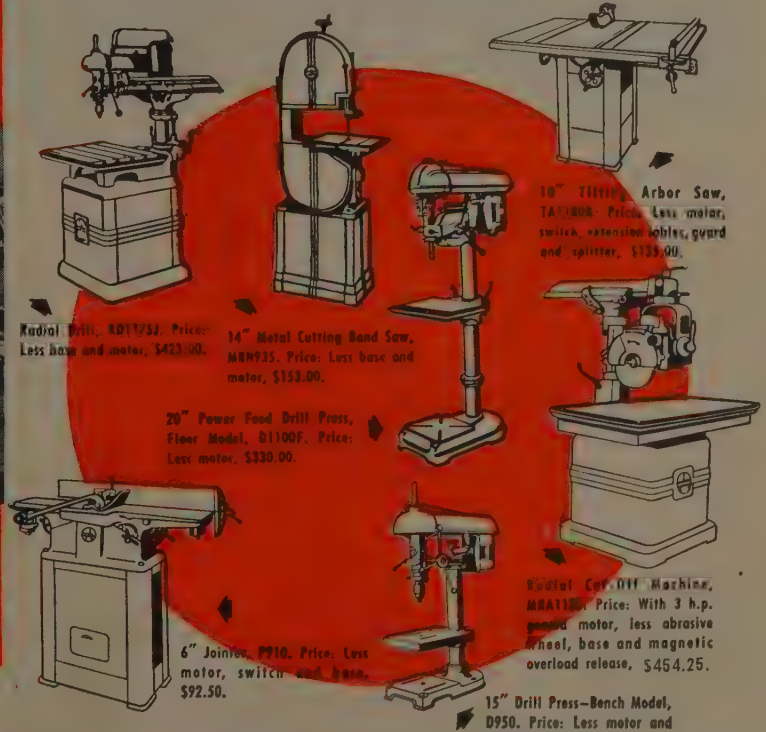
...PROVED IN PRODUCTION SHOW-HOW





In these actual shop applications Walker-Turner Machine Tools are used singly or in batteries with jigs, fixtures and attachments to perform specific jobs. Under continuous operation, they provide uninterrupted performance with trouble-free maintenance, smooth operation, and high rates of production at low cost.

Send for Walker-Turner's new illustrated booklet "Case Studies". It contains current case histories showing how these and other plants are using Walker-Turner Machine Tools with user-designed jigs, fixtures and special set-ups for increased production. See how a small investment can bring operating flexibility, increased productivity and low maintenance costs.



COMPLETE CATALOG OF WALKER-TURNER MACHINE TOOLS SENT ON REQUEST

DRILL PRESSES — HAND AND POWER FEED • RADIAL DRILLS • RADIAL SAWS
METAL-CUTTING BAND SAWS • POLISHING LATHES • FLEXIBLE SHAFT MACHINES
RADIAL CUT OFF MACHINES FOR METAL • MOTORS • BELT & DISC SURFACERS

NEW OPPORTUNITY FOR SIMPLIFIED DESIGN

It's Fafnir's new

WIDE TYPE PLYA-SEAL BALL BEARING

IF YOU can simplify complicated assemblies . . . eliminate parts . . . then you can cut out machining operations. Costs of both manufacture and maintenance come down. That's why manufacturers have said that Fafnir did a lot of things at one time when they developed the Wide Type Plya-Seal Ball Bearing. It has its own grease chamber and breather provision. Contaminants can't get in and grease can't get out.

It's a single row bearing in a double row width. Plenty of room for extra grease, plus room for grease expansion due to aeration under high speeds. Better shaft support . . . no slippage. *Full face* on inner ring for complete shouldering. Three-piece seals . . . synthetic rubber washers supported between two steel retaining rings to prevent buckling or bulging. Proof against common contaminants and temperature extremes. Seals easily removed and replaced as frequently as desired without injury to bearing or seals. It's a ball bearing you can tuck away inside a machine and forget for years, yet it's ready for complete inspection in a minute.

Still another opportunity for machine designers, product engineers, manufacturers to cut out unnecessary parts, to cut costs, to build extra dependability and minimum maintenance into their machines. Your inquiry about the new Fafnir Wide Type Plya-Seal Ball Bearing will receive prompt attention. Fafnir engineers will work mind-to-mind with your engineers. The Fafnir Bearing Company, New Britain, Conn.

MOST COMPLETE LINE IN AMERICA

FAFNIR BALL BEARINGS

★ NEW AND IMPROVED

Sundstrand Machines

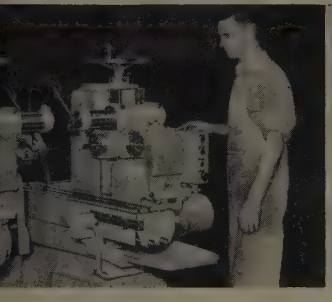
In Action at the Machine Tool Show

w Sundstrand Triplex Rigidmil with ee 25 horsepower heads for carbide milling.

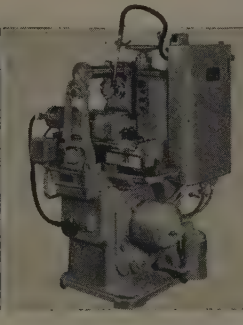
the new 75 horsepower Sundstrand natic Lathe turning steel forgings with carbide tools.

■ Here is a representative group of new and improved Sundstrand machines. Included are new Rigidmils, new lathes, a power feed drilling and centering machine, and one entirely special machine. Each will be tooled or demonstrated to show a Sundstrand "Engineered Production" solution to a machining problem.

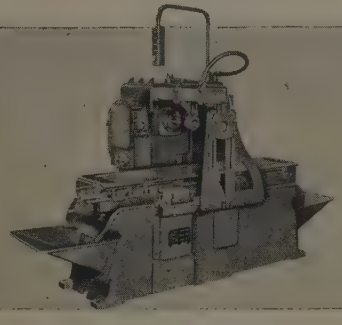
BOOTH 20



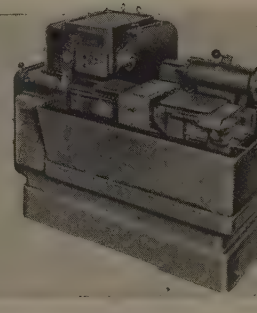
plex milling of small parts is fast l easily accomplished on this new No. 0 Duplex type Rigidmil.



The re-designed No. 00 Rigidmil provided with a Sundstrand automatic index base attachment.

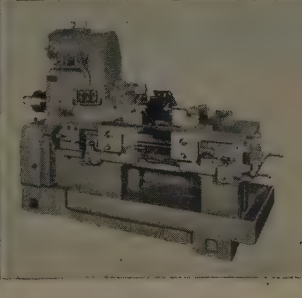


Model 33 Rigidmil with a high speed head (6000 RPM) and arranged with 6 to 300" feed per minute.

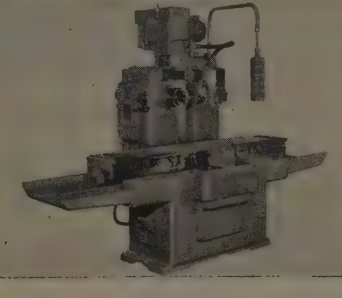


The new Sundstrand Model 4 Au Lathe with quick cycle changeover f short and long run turning.

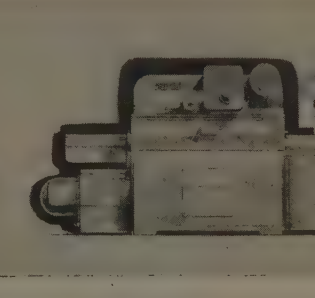
and Model 10 Automatic Lathe with ad slide and indexing turret machining d of pump body at high production.



The new Sundstrand Stator Turning Lathe which handles the turning of rabbet fits on electric motor frames.



New Model 22 Rigidmil with a vertical feed attachment arranged for step milling of keyways.



Special Sundstrand 6 Spindle Rigidm for milling automobile cylinder hea

New Sundstrand No. 53A Drilling and Centering Machine equipped with power feed and power clamping.

SUNDSTRAND MACHINE TOOL CO. ROCKFORD, ILLINOIS, U.S.A.

SUNDSTRAND

MACHINE TOOL COMPANY

2540 Eleventh St. • Rockford, Ill., U.S.A.

RIGIDMILS • AUTOMATIC LATHES • SPECIAL MILLING AND TURNING MACHINES

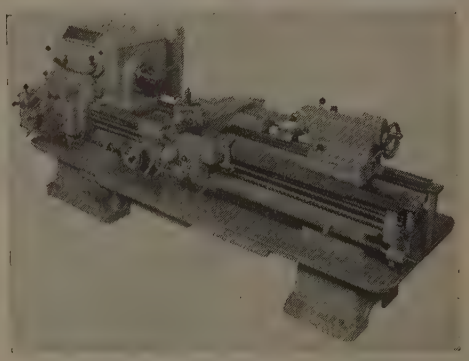
The Newest IN LODGE & SHIPLEY LATHES

The Latest IN TURNING TECHNIQUES

Representative Lodge & Shipley Lathes will be demonstrated for you in Booth 312 including the new Model "X" 16 inch Lathe. The Model "X" line features a 24 speed headstock available in three ranges of spindle speeds, a new bed and carriage ways, a totally enclosed quick change gear box with finger tip dial operation, automatic lubrication and many other outstanding new features.

See AT SHOW

THE NEW MODEL "X" LINE



16" SELECTIVE HEAD MODEL "X" ENGINE LATHE

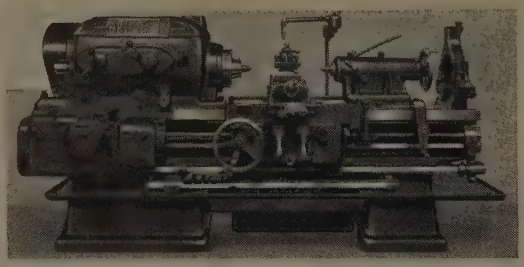
16" x 54" Selective Head Engine Lathe

The new Model "X" 16" x 54" Centers Selective Head Engine Lathe has Direct-reading Diameter and Length Attachments and the new "pancake" Flange Motor Drive. This lathe will demonstrate typical engine lathe jobs with emphasis on its versatility and complete range of speeds and feeds.

18" SELECTIVE HEAD MODEL "X" MANUFACTURING LATHE

18" x 54" Model "X" Selective Head Manufacturing Lathe

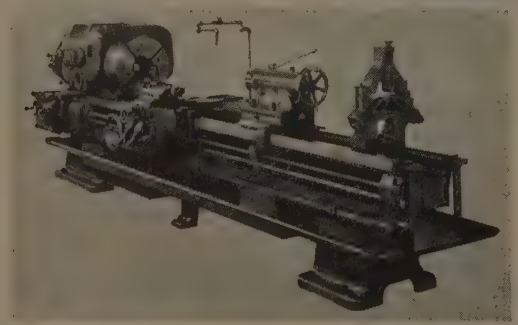
The Model "X" 18" x 54" Centers Selective Head Manufacturing Lathe with cost cutting attachments for small lot production and quick changeover to single piece and lot repetitive work. Typical manufacturing jobs will be performed on this lathe, demonstrating rapid production and extreme versatility.



CHICAGO

BOOTH

20" SELECTIVE HEAD MODEL "X" OIL COUNTRY LATHE



20" x 72" Selective Head Oil Country Lathe

The Model "X" 20" x 54" Centers Selective Head Oil Country Lathe with $8\frac{9}{16}$" hole through spindle and 21" 4-jaw independent chucks on each end of spindle. Typical industry jobs will be demonstrated on this lathe.

THE WORLD KNOWS L&S LATHES FOR GOOD LATHES ONLY

THE Lodge

CINCINNATI 25, OHIO

MACHINE TOOL DIVISION • 3055 COLERAIN

SPECIAL PRODUCTS DIVISION • 800 EVANS ST.

'em

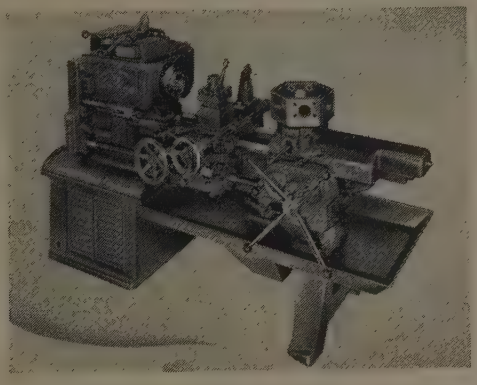
THE

!

MODEL "A" LATHE

Model "A" Engine & Tool Room Lathes owned by so many of the country's large and small manufacturers, will also be on display. Combining unusual sturdiness and a high degree of accuracy, these lathes provide many years of precision performance and sustained accuracy . . . will feature many new post-war improvements.

LODGE & SHIPLEY TURRET LATHES



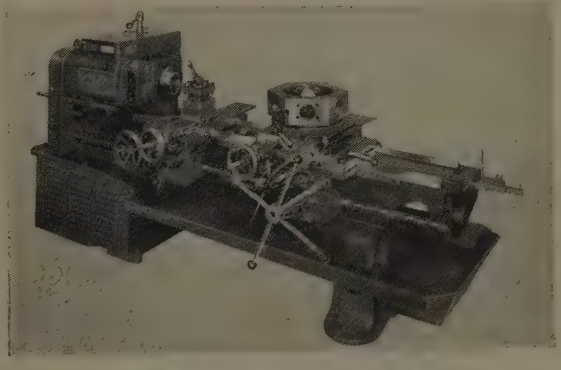
Lodge & Shipley Turret Lathes

From a broad line of Turret Lathes, Lodge and Shipley will display two outstanding turret lathes: the No. 1 Full Universal (Saddle Type) Acme Turret Lathe (left) and the No. 5 W Universal Way-type Turret Lathe (below).

SEPT. 17-26

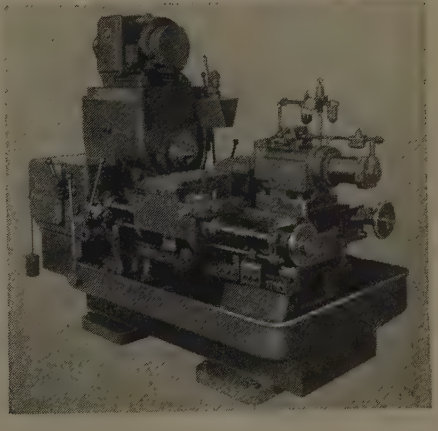
312

1947 MACHINE TOOL SHOW
CHICAGO SEPT 17-26



The New 2A DUOMATIC LATHE

The new 2-A Duomatic (automatic) Lathe is a small model of the well-known 3-A Duomatic and will be tooled up on a high production multiple tool job. Simplicity in changeover from one cycle to another will also be demonstrated.



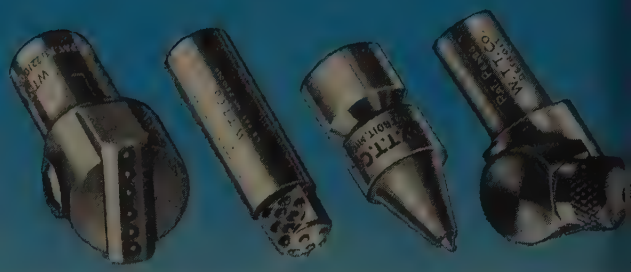
& Shipley COMPANY

STANDARD WHEEL DRESSING TOOLS

LANDIS | CINCINNATI CENTERLESS | NORTON | HEALD

SPECIAL FEATURE DRESSING TOOLS

STRAIGHT-SIX | IMPREGNATED | EVERSHARP | TRUCO

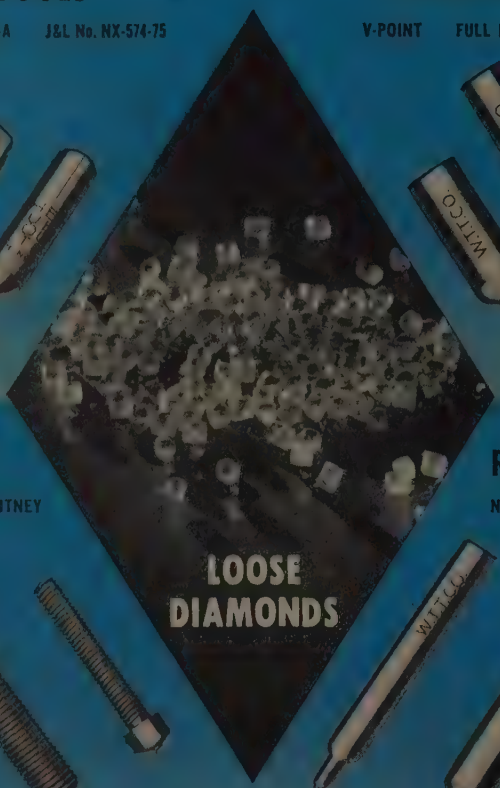


THREAD DRESSING TOOLS

X.L.O. No. 48-4105 | X.L.O. No. 48-4128 | J&L No. NX-668-A | J&L No. NX-574-75

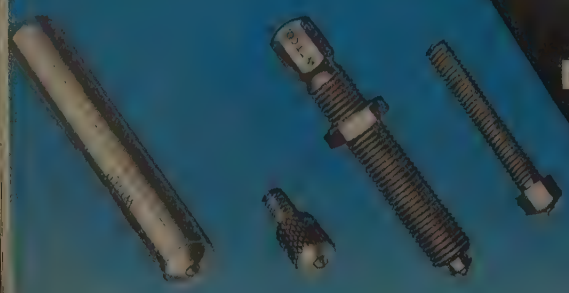
TURNING AND BORING TOOLS

V-POINT | FULL RADIUS | OFFSET | TURNING



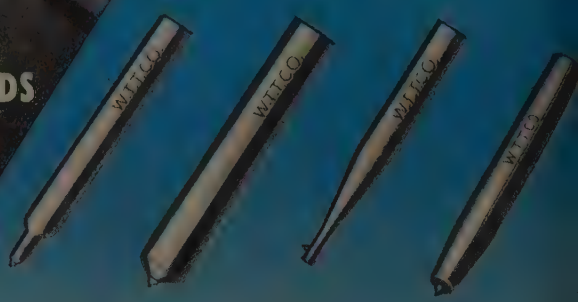
GAGE TOOLS

SPECIAL | SHEFFIELD | PRATT | PRATT & WHITNEY



RADIUS FORMING TOOLS

No. 1 | No. 2 | No. 3 | No. 4

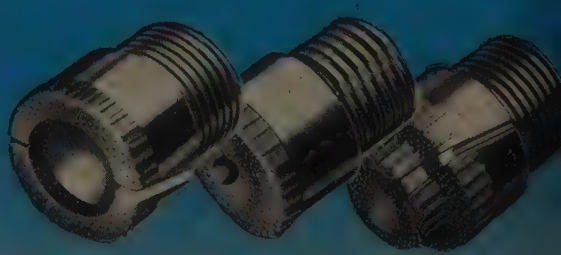


PATENTED TRU-LINE TOOLS

333 | 333 T15 SAL 15 | 333 VERTICAL SWIVEL | TRUFLO HOOD

DIAMOND DRILL BITS

CORE | BLAST HOLE | PILOT



"We can guarantee our diamond tools because they are engineered to the job."

Harvey O. Wallace

PRESIDENT

THIRTY-SEVEN YEARS AGO, when Wheel Trueing started in the diamond business, there were no standards of diamond tool value and guarantees were specifically avoided.

Wheel Trueing pioneered the idea of studying the job to be done, engineering the tool and the diamond to the job and guaranteeing satisfactory performance.

Consequently, for many years, Wheel Trueing customers have enjoyed the efficiency and the economy of using diamond tools scientifically matched to their work.

Our Engineering Data Sheets for supplying job information and our booklets on many types of Standard and Special diamond tools are yours for the asking. We invite your inquiries.

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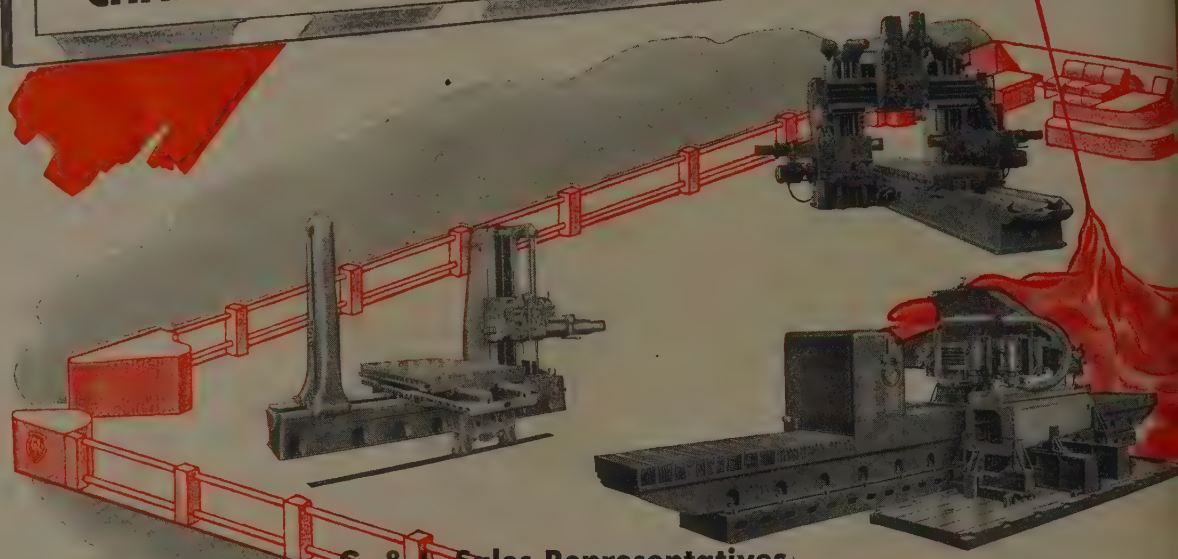
IN OPERATION AT...

★ N. M. T. B. A. SHOW ★ 1947 ★

See How These New

G. & L. MACHINES MEET YOUR CHANGING PRODUCTION DEMANDS



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3 TIME SAVING, PROFIT PRODUCING MACHINES *Supplementing* THE WORLD'S MOST COMPLETE AND VERSATILE LINE OF HORIZONTAL BORING, DRILLING AND MILLING MACHINES . . .

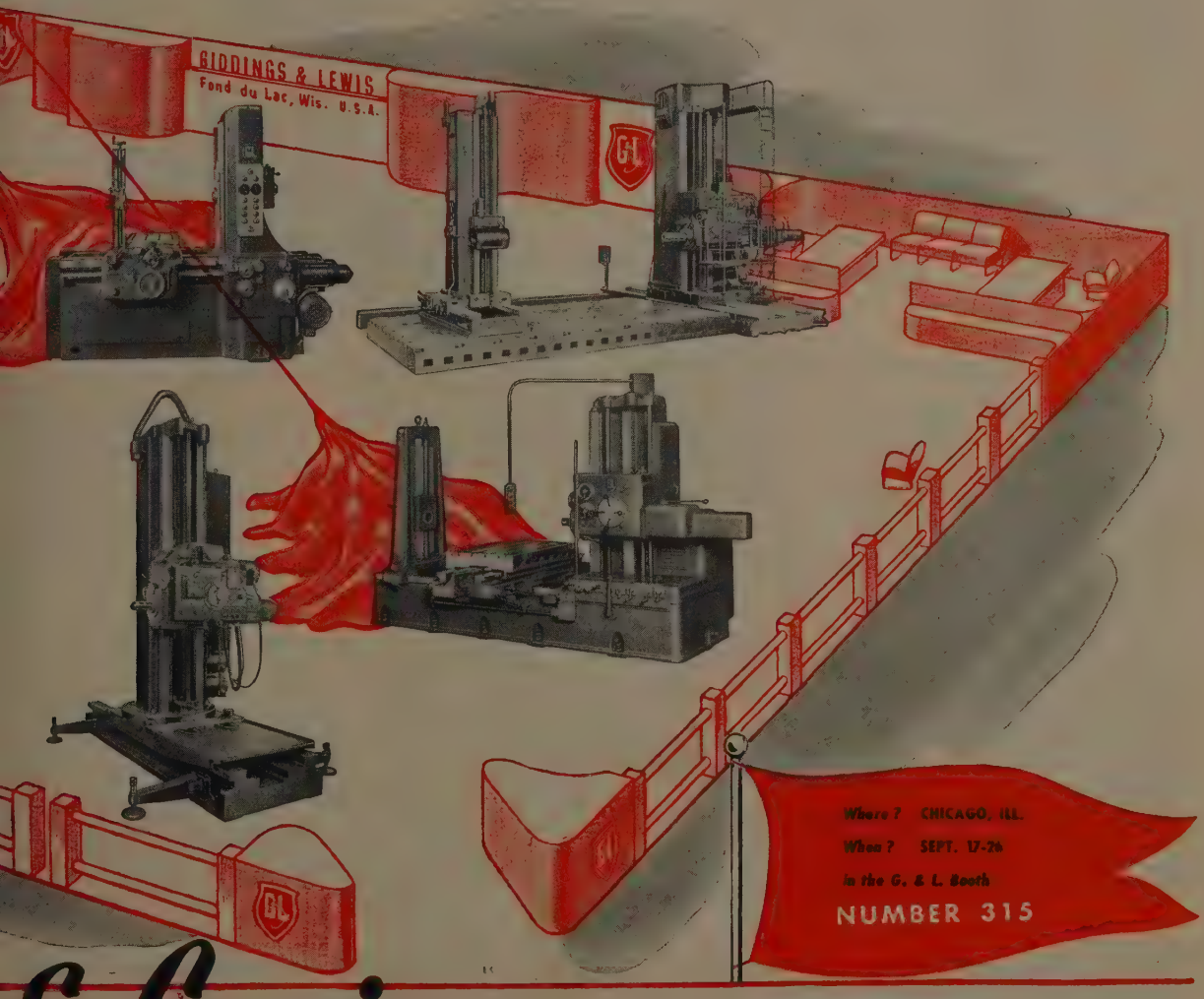
The No. 00-T — Small in Range, but a Giant in Producing or Reproducing Intricate Parts — a Table Type Machine of Great Accuracy.

The No. 300-T — The Answer to Your Requirements for Medium Size Work — has all the Flexibility of the Famous 30 Series Table Type Machine.

The FT-110 — The Better Way to Finish Bearing Surfaces on Machine Tool Elements.

All G.&L. machines are designed for greater accuracy, operating at higher feeds and speeds, producing more at lower costs.

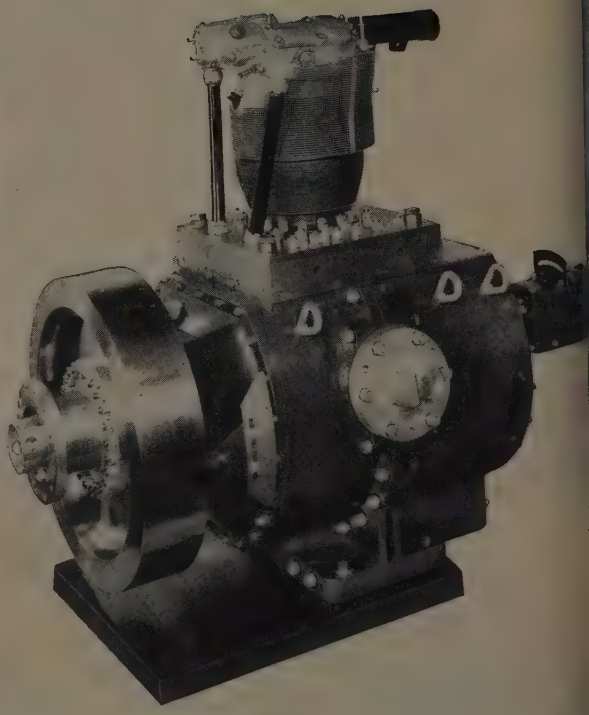
Visit Booth 315 — Ask our Sales Engineers to Assist You in Selecting the Proper Machine to Meet Your Problems.



G&Lewis MACHINE TOOL CO.

116 DOTY STREET • FOND DU LAC, WISCONSIN, U.S.A.

Reflection of Confidence



To build this complex, single-cylinder test engine
PRATT & WHITNEY CALLED ON MERZ

In the automotive and aviation industries, a full-size, single-cylinder test engine is the answer to more accurate, more economical fuel and oil research, as well as endurance testing of cylinder parts. But it's no mean task to build a full-size, single-cylinder engine so precise that dependable results are assured. It calls for long and specialized experience, consummate skill in both tooling and production, and the most modern precision equipment. That's why, when they set out to make available an engine of this type—with a 5.75″ bore and 6″ stroke—Pratt & Whitney Aircraft Division of United Aircraft Corporation called on MERZ Engineering Company, granting them a franchise to build and sell this engine.

At MERZ, they found a rare combination of engineering-and-production experience, dating back to the pioneer days of the automobile and the airplane . . . *plus* the proved creative ability and precision craftsmanship it takes to turn out the most intricate jobs accurately—in minimum time. The Pratt & Whitney test engine is a typical example of MERZ precision workmanship . . . a typical reflection of the confidence reposed in MERZ by industrial leaders everywhere.

•

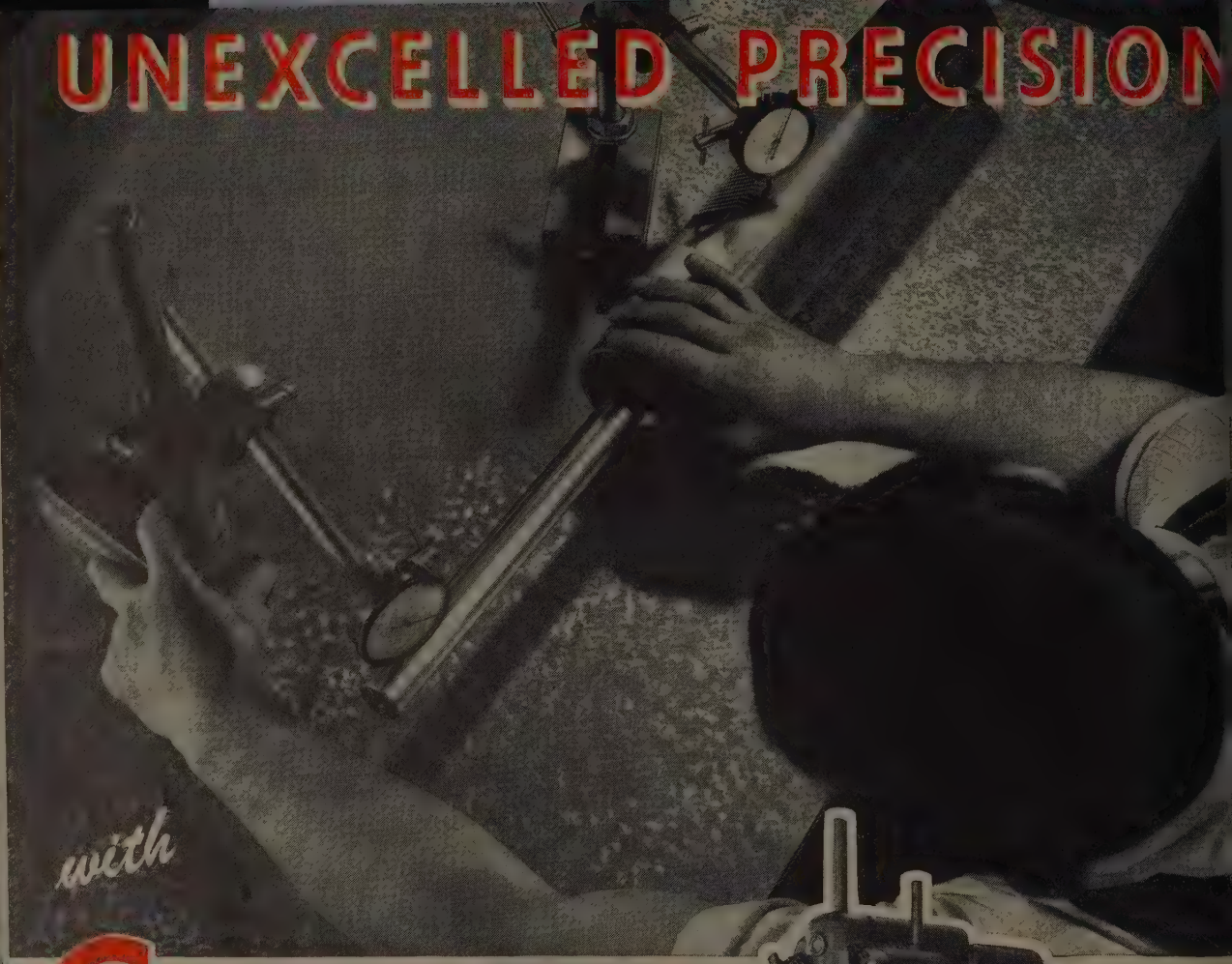
EXPERIMENTAL CRANKSHAFTS AND CAMSHAFTS—In addition to experimental projects for the automotive and aviation industries, MERZ has for many years specialized in the production of experimental crankshafts and camshafts for a variety of purposes. MERZ' experience in this highly specialized field of precision production is your best assurance of superior workmanship and dependable schedules. Write MERZ today about your requirements.

MERZ ENGINEERING COMPANY • INDIANAPOLIS 7, INDIANA

VISIT MERZ EXHIBIT • 33 F • MACHINE TOOL SHOW

MERZ

UNEXCELLED PRECISION



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CLEEREMAN
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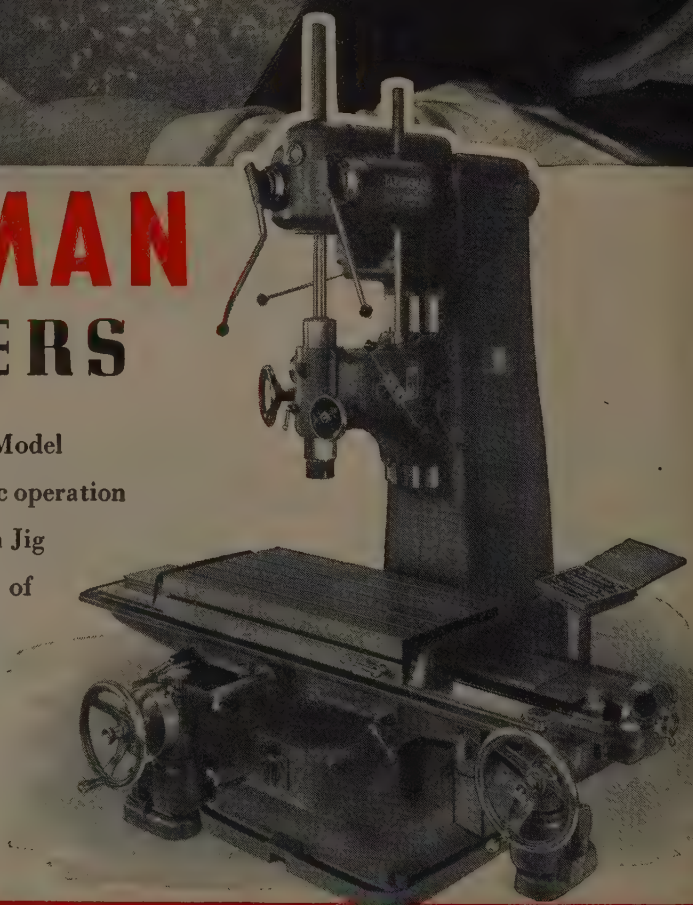
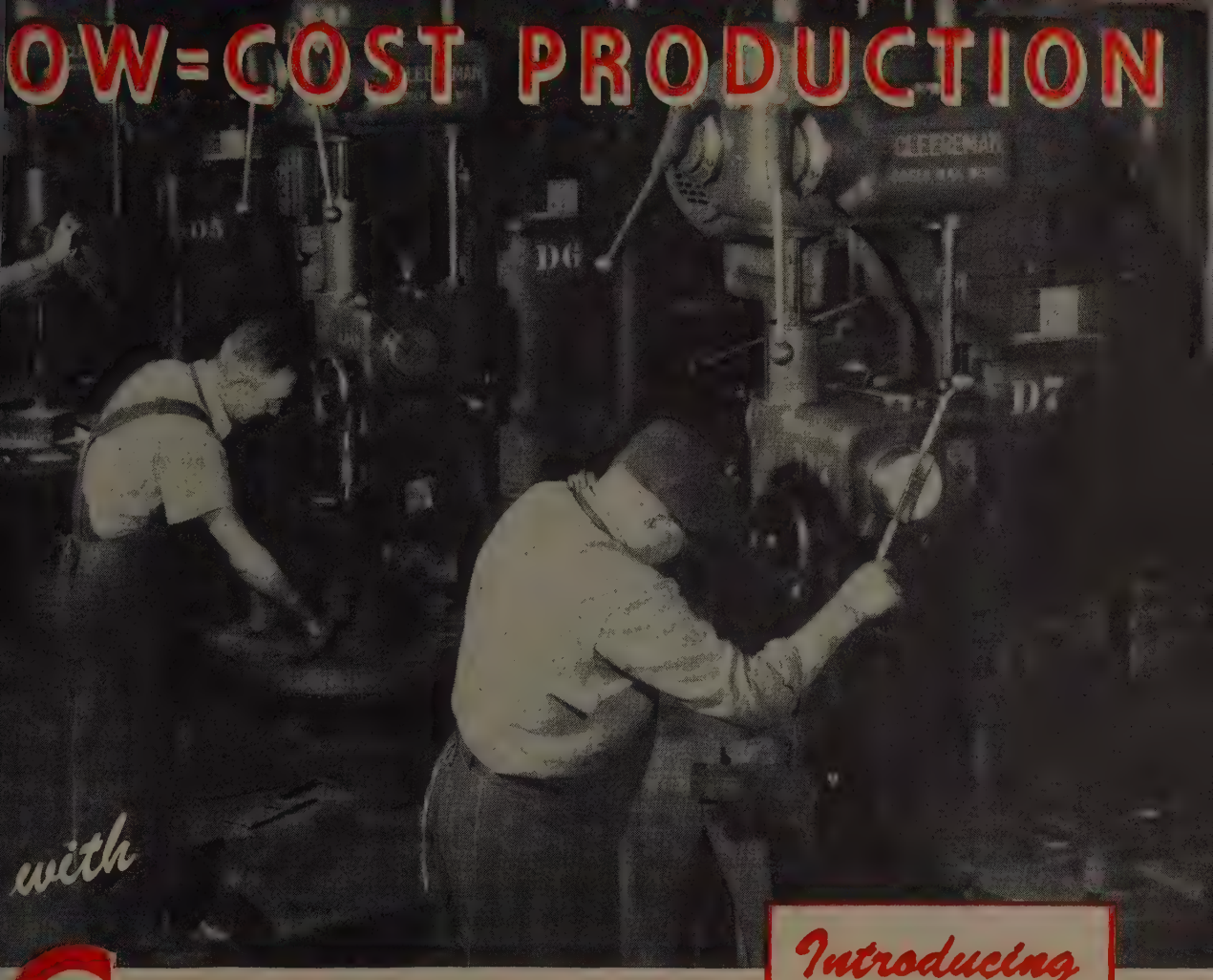
SEE the latest Cleereman Master Model No. 1836 Jig Borer with new electronic operation and the Cleereman No. 1830 Precision Jig Borer in an operating demonstration of the Cleereman Unexcelled Precision.



THE CLEEREMAN MACHINE TOOL COMPANY

GREEN BAY, WISCONSIN

OW=COST PRODUCTION



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DRILLING MACHINES

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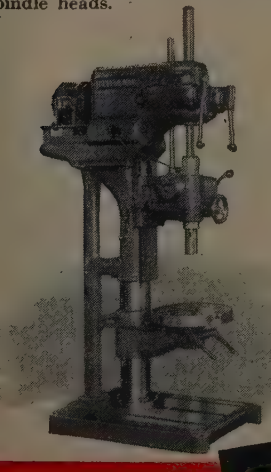
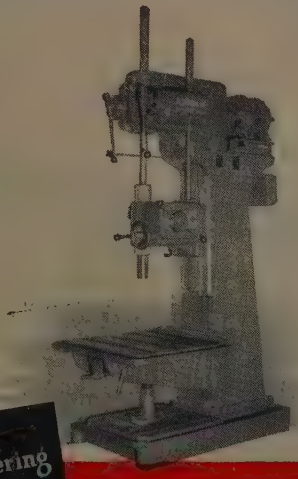
The Cleereman Box Column Drilling Machine, also available in 25″ and 30″ swing with single or multiple spindle heads.

Introducing

The latest Cleereman Drilling Machine, the No. 325 Single Unit Sliding Head model for both general purpose and economical high speed production work.





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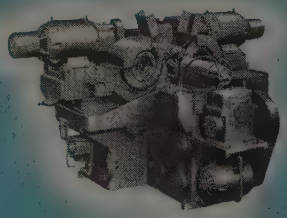
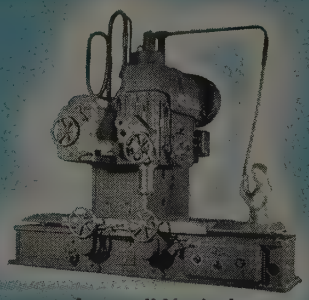
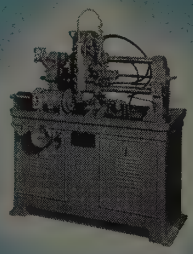
BOOTH NO. 123



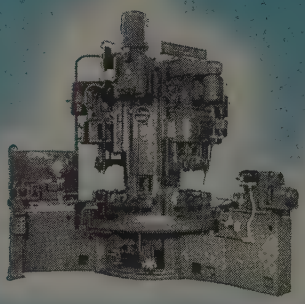
Gisholt Automatic Turn-Milling Machine for crankshaft bearings



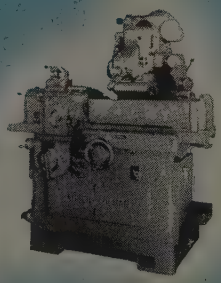
Ingersoll Vertical Spindle Milling Machine



Gisholt Superfinishing Machine



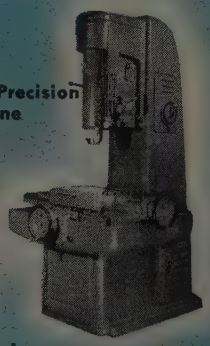
W. F. and John Barnes Special Drilling Machine

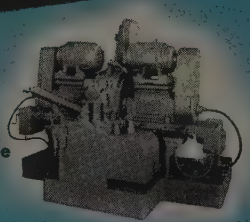


Barber Colman Automatic Hob Sharpening Machine

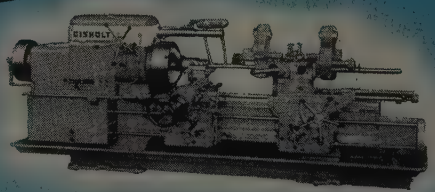
Hoefer Drilling Head

Kearney & Trecker Precision Boring Machine





Gardner Double Spindle Precision Grinder



Gisholt Saddle Type Universal Turret Lathe

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New South Bend Lathe

CATALOG

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SIZES AND TYPES OF SOUTH BEND LATHES

Engine Lathes—9", 10", 13", 14½", 16", and 16/24" swings; 3' to 12' bed lengths.

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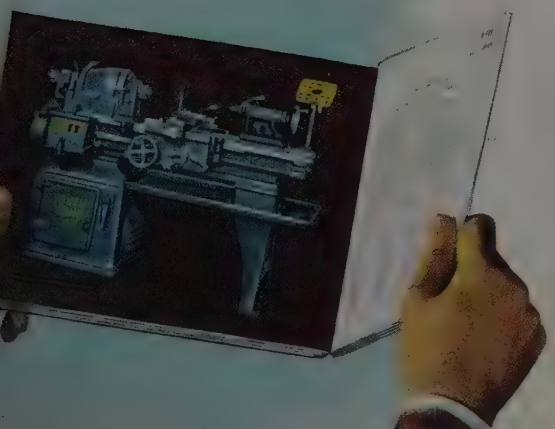
Precision Turret Lathes—½" and 1" collet capacities; 9", 10", and 16" swings.



All sizes and types of South Bend Lathes are clearly illustrated in color in this new catalog. Contains complete specifications including capacities, speeds, feeds, and weights—64 pages, size 11" x 8½" for standard file. Write for your copy of Catalog 100-F.

South Bend Lathes now available—

PROMPT DELIVERY made from local South Bend Lathe distributor's stock or early delivery direct from factory.

PRICES start at $145.00, f. o. b. factory, less electrical equipment. Average increase is less than 15 per cent over prewar price level.

TIME PAYMENT terms are 25% down and 12 monthly payments, available from factory. Moderate finance charge.

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SOUTH BEND LATHE WORKS

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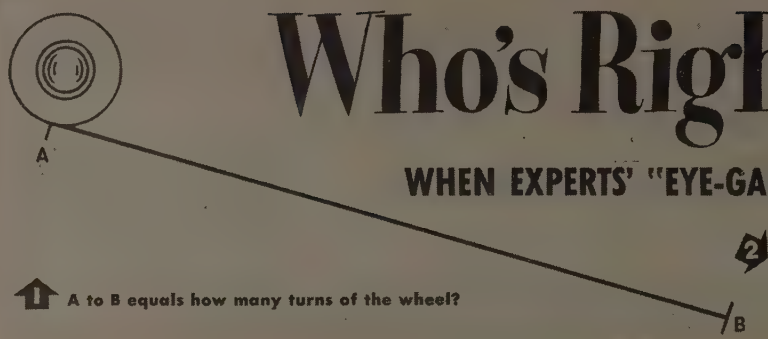
SEE OTHER SIDE

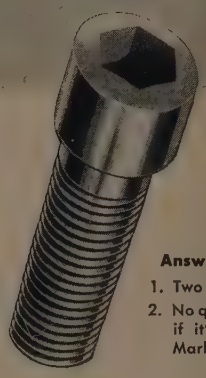
Who's Right...

WHEN EXPERTS' "EYE-GAUGING" DISAGREES?



1 A to B equals how many turns of the wheel?

2 What size is this Socket Screw?



Answers:

1. Two turns.
2. No question if it's Size-Marked!

● In everyday shop practice, many problems arise that require "eye-gauging". Identifying the correct size and pitch of an ordinary socket head cap screw is one example. In recent tests, this simple question stumped many good mechanics. On the job, if they guessed, they'd chance errors and delays. Good workmen don't guess—they "mike" or gauge the screw—but that, too, takes *time*.

Now, the SIZE-MARK on the head of every P-K Socket Head Cap Screw ends the need for guessing or gauging. Pick up a P-K Socket Head Cap Screw anywhere . . . no matter where it has strayed from the labeled box . . . you can see its size and pitch at a glance.

The SIZE-MARK is welcomed by assembly workers because it saves time. It helps the tool-crib men speed up sorting of mixed-up, left-over screws. It helps new workers learn screw sizes faster. It's a sales feature, too . . . maintenance men in the field can reassemble faster after servicing.

Plus GEAR GRIP*

Gear Grip on Size-Marked Socket Head Cap Screws is another aid to faster work . . . it saves highly-paid fingers from slipping, even when oily. *Only* P-K offers SIZE-MARK and GEAR GRIP.

SAMPLES FREE. Show advantages of P-K Size-Marked Gear Grip Socket Head Cap Screws in contrast with ordinary Socket Screws. Compare and judge for yourself. Write Parker-Kalon Corp., 200 Varick St., New York 14, New York.

You know you're right

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P-K SOCKET SCREWS ARE
AVAILABLE FOR PROMPT DELIVERIES.
SEND FOR STOCK LIST NOW.

*U. S. Pat. No. 126,409

SOLD ONLY THROUGH ACCREDITED DISTRIBUTORS

PARKER-KALON *Cold-forged* SOCKET SCREWS

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MACHINE TOOL SHOW
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Another P-K First —
GROUND THREAD Socket Set Screws

Smooth, mirror-bright, clean finished threads — centerless ground on hardened blanks. Faultless contour and lead, dependable Class 3 Fit. Free from imperfections common to ordinary cut thread set screws . . . a "shining example" of good workmanship. Get samples now . . . see and feel the difference!

We Saw A Lot of Pink In There!

CHANCES ARE that's what *you'll* be saying after you visit the National Machine Tool Builders Show in Chicago this month. You *will* see a lot of Cimcool, the pink colored cutting fluid, in actual use in the machines on exhibit. Why? Because every exhibitor wants his machine to look and perform its best. And for job after job after job, **THAT** calls for Cimcool, the revolutionary new kind of cutting fluid—the *chemical emulsion* that combines cooling capacity and friction reduction in a degree never before attained. Look for the distinctive pink color of Cimcool at the show—and give it a test in your own metal working shop.

CIMCOOL

THE MULTI-PURPOSE CUTTING FLUID

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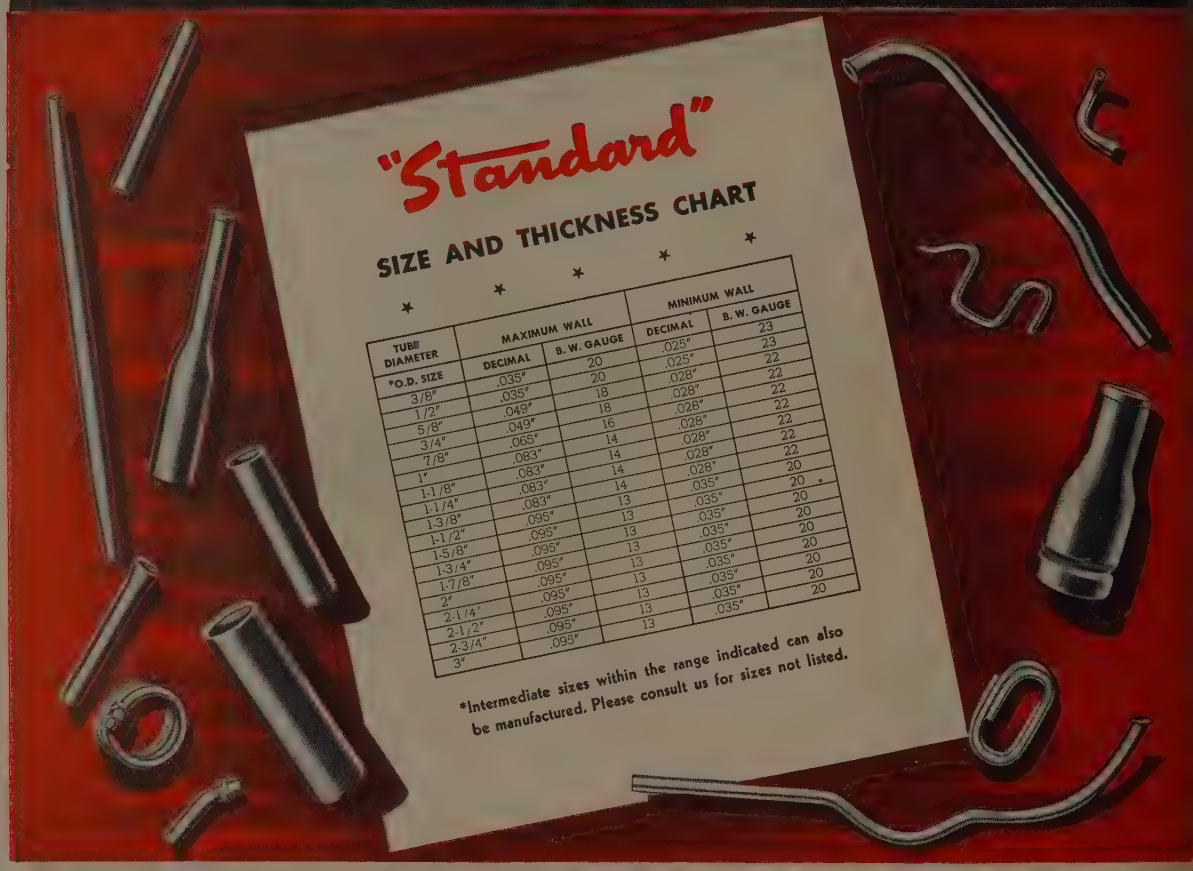
CIMCOOL DIVISION of THE CINCINNATI MILLING MACHINE CO., CINCINNATI 9, OHIO, U. S. A.

NOW AVAILABLE "Standard" WELDED STAINLESS STEEL TUBING



TUBE DIAMETER	MAXIMUM WALL		MINIMUM WALL	
*O.D. SIZE	DECIMAL	B. W. GAUGE	DECIMAL	B. W. GAUGE
3/8"	.035"	20	.025"	23
1/2"	.035"	20	.025"	23
5/8"	.049"	18	.028"	22
3/4"	.049"	18	.028"	22
7/8"	.065"	16	.028"	22
1"	.083"	14	.028"	22
1-1/8"	.083"	14	.028"	22
1-1/4"	.083"	14	.028"	20
1-3/8"	.083"	14	.035"	20
1-1/2"	.095"	13	.035"	20
1-5/8"	.095"	13	.035"	20
1-3/4"	.095"	13	.035"	20
1-7/8"	.095"	13	.035"	20
2"	.095"	13	.035"	20
2-1/4"	.095"	13	.035"	20
2-1/2"	.095"	13	.035"	20
2-3/4"	.095"	13	.035"	20
3"	.095"	13	.035"	20

*Intermediate sizes within the range indicated can also be manufactured. Please consult us for sizes not listed.

Many Analyses for Numerous Applications

With more than a quarter of a century experience in the manufacture of Welded Carbon Steel Tubing, we have now added to our line, "Standard" Stainless Steel Tubing produced by the atomic Hydrogen Welded process.

"Standard" Stainless Steel Tubing can be furnished in the various analyses such as Type 302 - 304 - 316 - and 347.

"Standard" Stainless Steel Tubing is available for Mechanical, Pressure, Structural and Ornamental applications. Specify "Standard" and get the best.

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Detroit 3, Michigan
Welded Tubing
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THOR HEAVY DUTY ½" ELECTRIC DRILL—the original, close-coupled, smaller, lighter half-inch electric drill. No other electric drill of similar size offers such compact power and light weight convenience and high efficiency for continuous service on hard production and maintenance jobs. There's a full range of Thor sizes—*a tool for every need*—all compactly designed, well-balanced and ruggedly built. *For full information ask your nearby Thor Distributor or write for catalog.*

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Thor **PORTABLE POWER TOOLS**

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WE CAN EASILY PROVE TO YOU THAT . . . .

SPEED CASE STEEL

X1515—LOW CARBON OPEN HEARTH PRODUCT

WILL DO THESE THINGS—

- MACHINE LIKE BESSEMER B1113
- CARBURIZE LIKE C1019, C1117
- INCREASE TOOL LIFE 4 TO 5 TIMES
- REDUCE WARPAGE
- IMPROVE FINISH
- REPLACE C1117, C1118, B1112, B1113, C1019, C1115

WE WILL PROVE IT TO YOU THIS WAY

Write us for samples. **When you receive them we will send our Production Expert to you, at our expense. He will show you, in your own plant, how speed case will increase your production, lengthen tool life and reduce rejections.** ***Write for catalog and samples.***

SPEED TREAT STEEL
Medium High Carbon for Heat Treating

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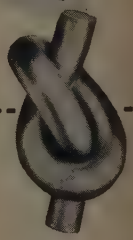
ASK FOR THE SERVICES OF OUR PRODUCTION EXPERT

Tear off here ATTACH TO YOUR LETTERHEAD AND MAIL TO EITHER COMPANY BELOW



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YOUNGSTOWN, OHIO

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MONARCH STEEL COMPANY
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PECKOVER'S LTD. Toronto, Canadian Distributor

ACTUAL PHOTOGRAPH
Speed Case Steel 1.20 carbon 1 inch cold drawn bar tied in a knot, cold, without fracture.

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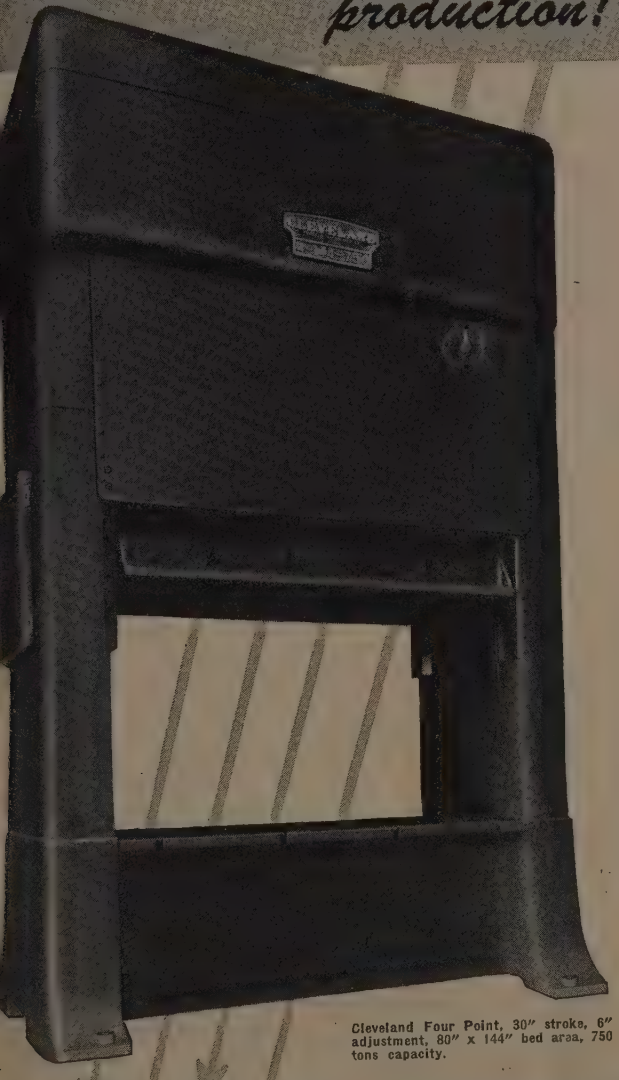
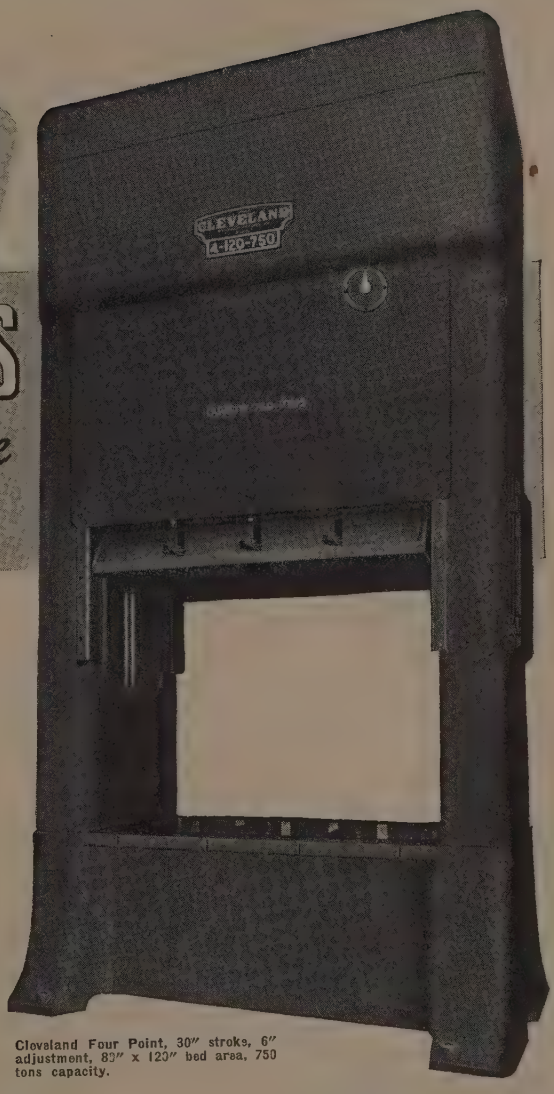
Modern CLEVELAND PRESSES

point the way to profitable production!



Cleveland Four Point, 30" stroke, 6" adjustment, 80" x 144" bed area, 750 tons capacity.

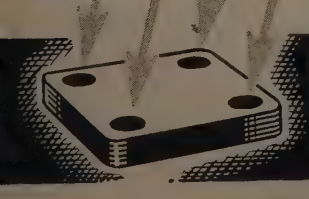


Cleveland Four Point, 30" stroke, 6" adjustment, 80" x 120" bed area, 750 tons capacity.

Today, as never before, the narrow margin of profit can probably be best controlled by reducing manufacturing costs through the use of completely modern production equipment.

Alert manufacturers recognizing this fact are giving more thought to the replacement of more or less obsolete equipment with Presses that will pay their way as a satisfactory investment.

Therefore, whatever you produce in the line of pressed metal products—whether large or small—you will find that by the use of Modern Cleveland Presses you will obtain greater efficiency, lower costs and more assured uniformity, because Cleveland Presses are designed to meet the requirements of modern manufacturing standards.



FOUR POINT PRESSES have four connections .. one at *(approximately)* each corner of the slide.

THE CLEVELAND PUNCH & SHEAR WORKS CO.

Cleveland 14, Ohio

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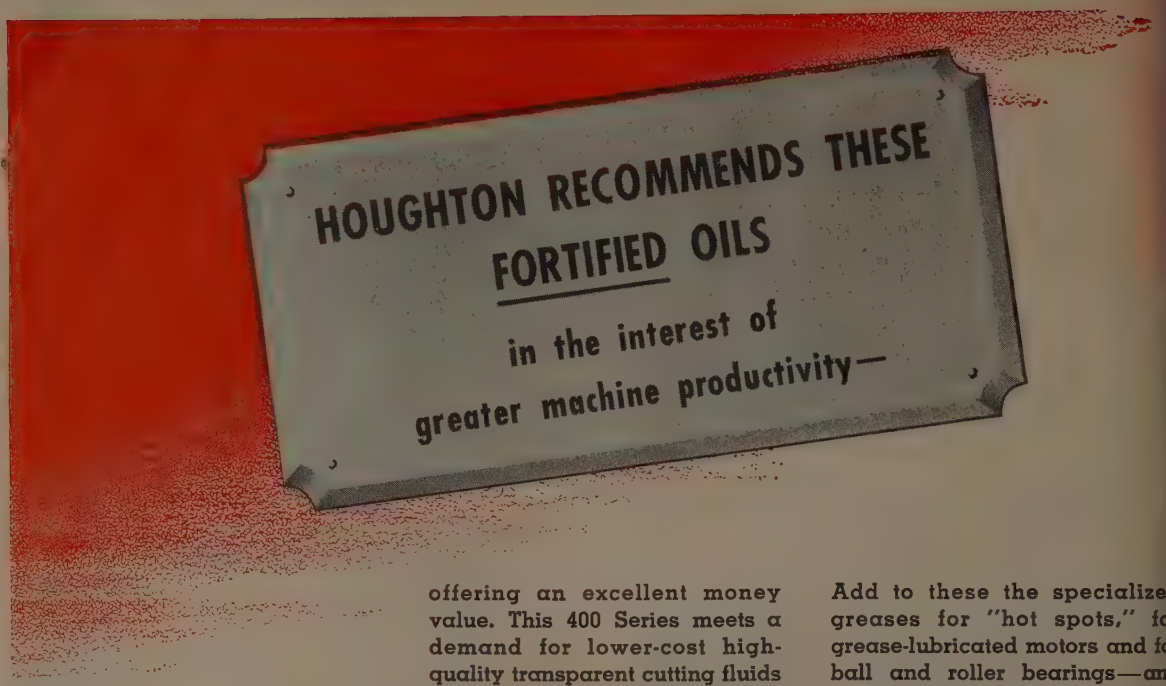

TODAY'S great need is for greater productivity—only possible if men use modern machines to increase output. To make those machines function most efficiently for long periods without break-down, these Houghton oils are presented for your investigation and use:

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Where water-soluble oils are desired, we offer *Antisep* Soluble Oil, combining unusual antiseptic and cleansing properties with the traditional factors of fine finish and longer tool life.

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Well known to plant men is the STA-PUT line of industrial oils, treated to provide unusual resistance to leakage, and to increase the load-carrying capacity. Ways, slides, motors, gears, etc., function smoothly when they're Sta-Put lubricated.

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Add to these the specialized greases for "hot spots," for grease-lubricated motors and for ball and roller bearings—and you have a complete lubrication line, backed by a personalized service. That service extends into the plant, where requested, to help set up an error-proof, workable lubrication plan. Its net result is "Less Oil—Less Often."

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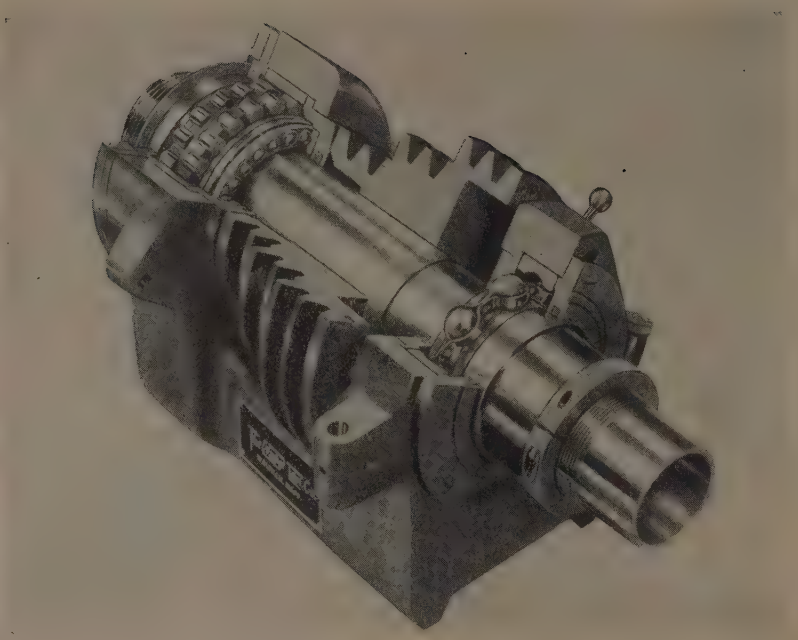

● SKF *Spindle Mounting as used on screw machine built by The Wade Tool Co.*

BEARING ACCURACY= SPINDLE RIGIDITY

Here's the SKF Spindle Mounting that assures *spindle rigidity* on Wade Precision Screw Machines. An SKF Precision Double-Row Cylindrical Roller Bearing supports the spindle as close to the spindle nose as possible and takes the radial load. An SKF Precision Ball Thrust Bearing, just back of the roller bearing, takes the thrust load. The rear end of the spindle is supported by an SKF Precision Deep-Groove Ball Bearing, which takes the radial load and also opposes the ball thrust bearing. In terms of spindle performance, this bearing mounting provides rapid production of parts to exacting limits and with fine finish, even when produced at high speeds with coarse feeds. For further information concerning the application of SKF Spindle Mountings to turning, boring and grinding machines, send for our new catalog, "Machine Tool Bearings and Spindle Design."

6331

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

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free round-trip transportation from
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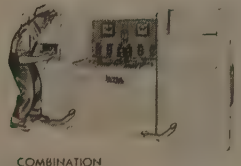

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SPOT WELDERS

HIGH-PRECISION LATHES

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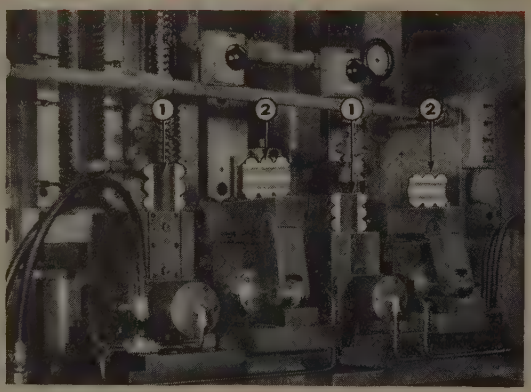
2 OPERATIONS PER PIECE . . . 256 PIECES PER HOUR

Broaching MAIN BEARING CAPS

OPERATION 1
Broach Two Flanges

OPERATION 2
Broach Flange Faces and I. D.

And BOTH OPERATIONS ON ONE RAM . . .



Detroit Broach designed and built the tooling for both operations 1 and 2 to be mounted on one ram of the double ram broaching machine. The other ram is used to perform the same two operations on Bearing Caps of another size. One man operates both rams with ease.

768 Main Bearing Caps per hour, finished on both sides . . . that's speed and economy hard to duplicate with any other method. And chances are that you can realize similar, even greater, savings by broaching some of your production parts.

As the country's largest exclusive manufacturer of broaches and broaching tools, Detroit Broach is well qualified through specialized experience to get the most for you from every broaching production-hour. We will help you to select your broaching operations and then give you cost and production data for each. It's a step toward beating today's high production costs.

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ELIMINATION OF LOSSES — Manufacturers of cutting tools report a virtual elimination of losses due to non-uniformity of material.

their experience proves what you can expect with LATROBE

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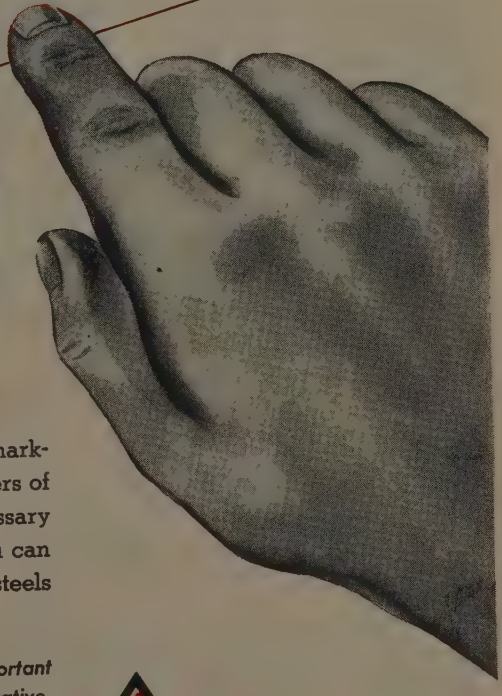
BRAND OF

Dispersed-Segregate STEELS



Some few months back when Latrobe first introduced this remarkable new development in high speed and die steels, many users of such steels had come to accept carbide segregations as a necessary evil. Today their experience is a sound indication of what you can expect from Latrobe's DESEGATIZED Brand Steels . . . steels which are free of harmful carbide segregation.

Latrobe's sales engineers will be glad to give you the facts on this important tool steel development. Write or call your nearest Latrobe representative.

5

LATROBE ELECTRIC STEEL COMPANY — **LATROBE, PA.**

a New BARBER-COLMAN HYDRAULIC CYCLING PRODUCTION HOBBING MACHINE

Featuring

INCREASED FEEDS AND SPEEDS

PRECISION ACCURACY

CONVENTIONAL OR CLIMB CUT

HYDRAULIC CYCLING

RAPID TRAVERSE

CENTRAL CONTROL PANEL

* * *

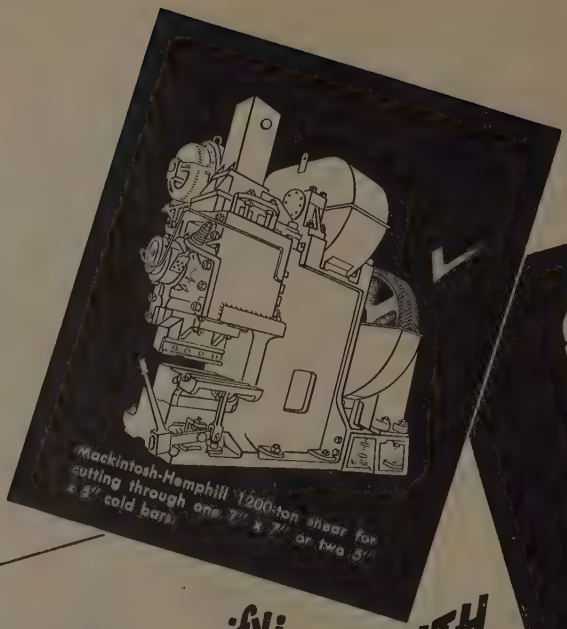
Model of No. 8-12 Production Hobbing Machine

A completely new machine from the bed-casting up, with hydraulic cycling, the No. 8-12 has been designed to meet the need for increased hobbing feeds and speeds, adaptable to carbide hobbing, improved accuracy and finish, and greater ease and accessibility. This machine will be demonstrated at the Machine Tool Show and complete information and operating features will be made available at that time. This announcement is made in advance to assist you in scheduling visitations for all interested shop personnel. Don't fail to see this machine.

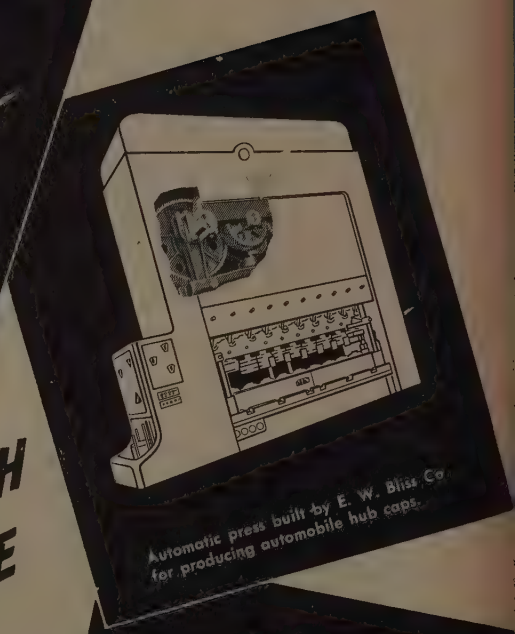
BARBER B-C COLMAN

Barber-Colman Company

GENERAL OFFICES AND PLANT 121 LOOMIS ST., ROCKFORD, ILLINOIS, U.S.A.



Mackintosh-Hemphill 1200-ton shear for cutting through one 7" x 7" or two 5" x 5" cold bars.



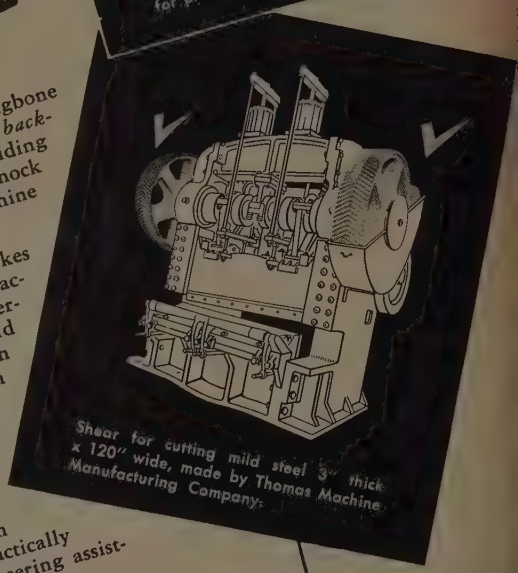
Automatic press built by E. W. Bliss Co. for producing automobile hub caps.

For heavy, shock loads, specify: THE GEAR WITH A BACKBONE

Instead of a useless center groove, Farrel-Sykes herringbone gears have a *backbone* where the helices meet. This *backbone* makes the teeth continuous across the face, providing extra strength and greater capacity for wear and shock resistance — especially important in heavy duty machine applications like those shown here.

Precision generation by the famous Farrel-Sykes method, accuracy of tooth contour and tooth spacing, combined characteristics of overlap or interlacing of the teeth, gradual engagement and inclined line of pressure contribute to smooth operation and maintenance of correct tooth action throughout a long gear life. The opposed helices balance and absorb axial thrust within the gear member, preventing harmful thrust loads with resultant stresses on other parts of the machinery.

The *Gear with a Backbone* is made in any size up to 20 feet in diameter, for practically any application. Information and engineering assistance available, without obligation.



Shear for cutting mild steel 3" thick x 120" wide, made by Thomas Machine Manufacturing Company.

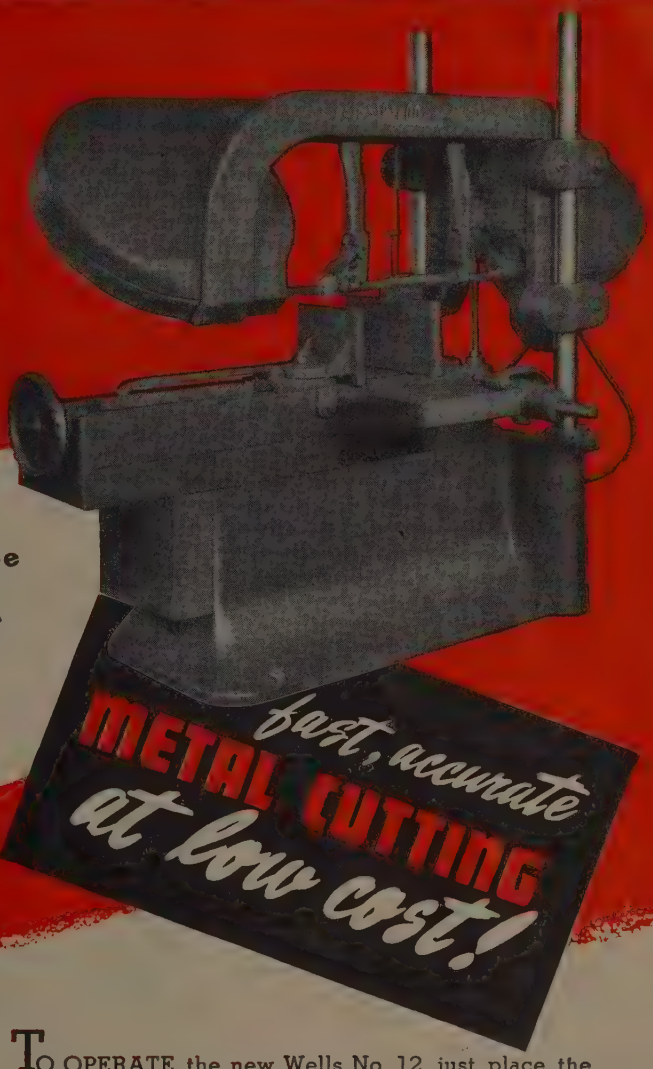
FARREL
The Gear with a Backbone

FARREL-BIRMINGHAM COMPANY, INC.
344 VULCAN ST., BUFFALO 7, N. Y.
Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
Sales Offices: Ansonia, Buffalo, New York, Boston, Pittsburgh, Akron, Chicago, Los Angeles, Tulsa, Houston

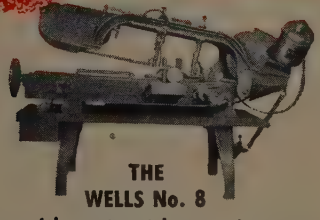
Farrel-Birmingham

FB-413

the new WELLS No. 12



- Automatic Cutting Cycle
- Controlled Blade Pressure
- Horizontal Blade Travel
- Magnetic Controls
- Hydraulic Operation



THE WELLS No. 8
with wet cutting system

This versatile saw is suitable for production or general utility work. It has a capacity of 8" x 16", rectangular, and 8" dia., rounds. The wet cutting system is a low cost extra that speeds cutting and lengthens blade life.

TO OPERATE the new Wells No. 12, just place the stock in the quick acting vise and push the starting buttons. The cut is made automatically with controlled blade pressure to any desired depth. At the completion of the cut the head returns to a predetermined position. You can't beat it for simplicity of operation. Write for details, today.

SPECIFICATIONS

CAPACITY, Rectangular	12" x 16"
Rounds	12¾" O. D.
Die Blocks	12¾" depth; 16" width; Clearance 18" bed to blade
MOTORS	⅓ H. P. and ¾ H. P., A. C. or D. C.
SPEEDS	Selective, 50, 90, 150 feet per minute
WEIGHT	Approximately 1750 pounds

Wells SAWS
THE SIGN OF SERVICE

Wells

Products by Wells are Practical

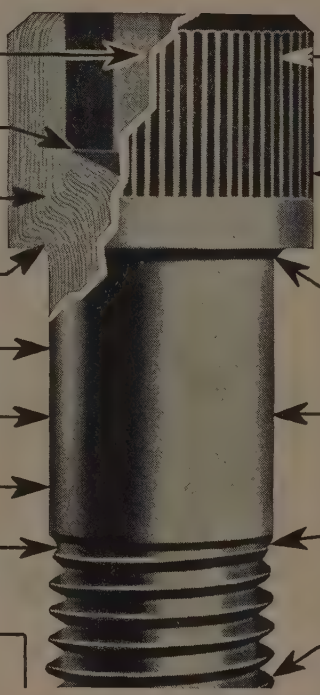
METAL CUTTING BAND SAWS

WELLS MANUFACTURING CORPORATION
1515 FILLMORE ST., THREE RIVERS, MICHIGAN

These IMPORTANT FEATURES *of*

UNBRAKO KNURLED SOCKET HEAD CAP SCREWS

REG. U. S. PAT. OFF.



Give you these OUTSTANDING ADVANTAGES

STRENGTH, TOUGHNESS, RELIABILITY . . . the result of constant testing, inspection and quality control.

KNURLED HEAD FOR EASY ASSEMBLY . . . the knurled head provides a slip- and fumble-proof grip, even for the most oily fingers, therefore, the screw can be screwed-in faster and farther before it becomes necessary to use a wrench.

We also make the famous "Unbrako" Socket Set Screw with the "Self-Locking" Knurled Cup Point, and the "Unbrako" Socket Set Screw with the "Self-Locking" Knurled Threads.

OVER 44 YEARS IN BUSINESS

EASY START THREAD POINT . . . specially designed to assure fast, easy thread start.

INTERNAL WRENCHING . . . to promote Compact Designs which save space, material, weight and costs. Write for your copy of the "Unbrako" Catalog.

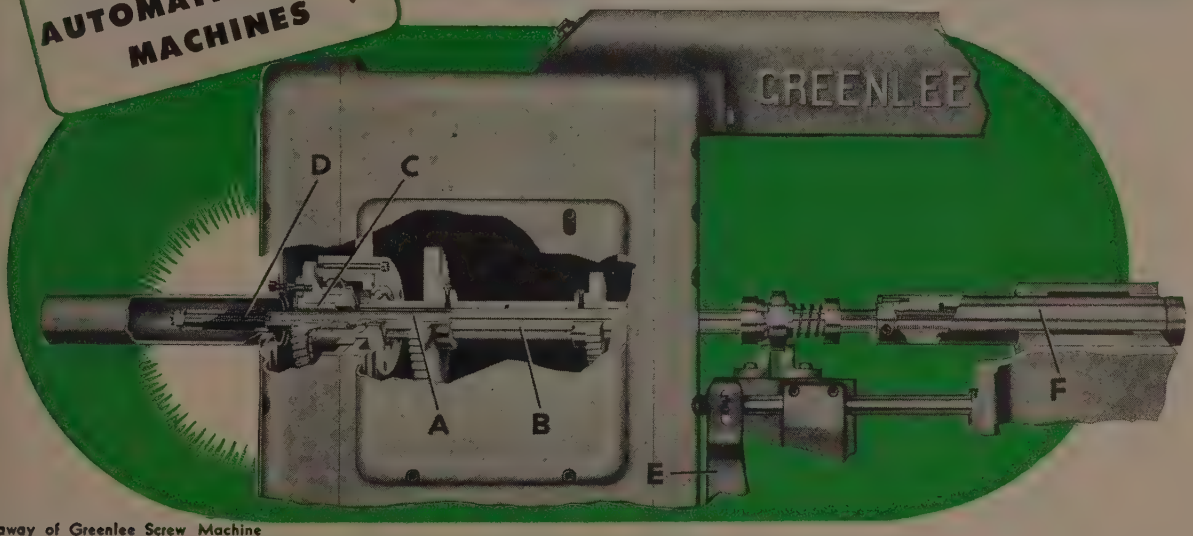
"Unbrako" and "Hallowell" Products are sold entirely through distributors.

Knurling of Socket Screws originated with "Unbrako" in 1934.

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA., BOX 579 • BRANCHES: BOSTON • CHICAGO • DETROIT • INDIANAPOLIS • ST. LOUIS • SAN FRANCISCO

New LEAD-SCREW FEED ON GREENLEE AUTOMATIC SCREW MACHINES Speeds Production OF PRECISION-THREADED PARTS



t-away of Greenlee Screw Machine
owing combination cam-and-lead-screw-
erated threading spindle in 5th position

NO SPECIAL CAMS OR SPEED GEARS REQUIRED — SIMPLE DESIGN SAVES TIME AND MONEY . . .

Here at last is a screw machine development offering an economical solution to the problem of cutting precision threads at production speeds. This new cam-and-lead-screw-operated threading arrangement for the Greenlee "6" gives a rapid approach, accurate threading-in and threading-out, and a quick withdrawal. It speeds production and insures a uniform, high-quality thread with a very accurate lead.

As illustrated, the Threading Spindle Drive Shaft "A", which is driven by Splined Sleeve "B", is relieved of splines at its outer end. Driven at a constant speed, bronze Lead-Screw Nut "C" engages precision Lead Screw "D" to produce the necessary lead. Cam-operated Lever "E" handles the rapid approach and quick withdrawal. Precise adjustments for depth are made by setting Spindle "F" on the threaded Drive Shaft "A".

7 Cost-Saving Features

- Cuts costs of producing parts requiring precision threads.
- Positive lead-screw feed insures uniform high-quality results.
- Reduces scrap losses.
- Simple design plus interchangeable feature cuts equipment and re-tooling costs.
- Increases work handling capacity.
- Quick and easy adjustments save set-up time.
- Easily adapted to old machines at nominal cost.

Economical To Use — Completely Interchangeable

To cut threads with different taps or chasers, it is only necessary to change the easily-removed lead screw and nut. Lead screws and nuts with different leads can be made to order in your own tool room and are easy to store. Thus, a wide variety of work can be handled, quickly and economically. Lead-screw threading operations can be handled in 3rd, 4th, and 5th positions. *In addition,* by simply removing the lead screw and nut, the Greenlee "6" can be quickly changed-over to handle ordinary jobs. No special cams or speed gears are required.

PRODUCTION MACHINERY
GREENLEE
BOOTH 53 MACHINE TOOL SHOW

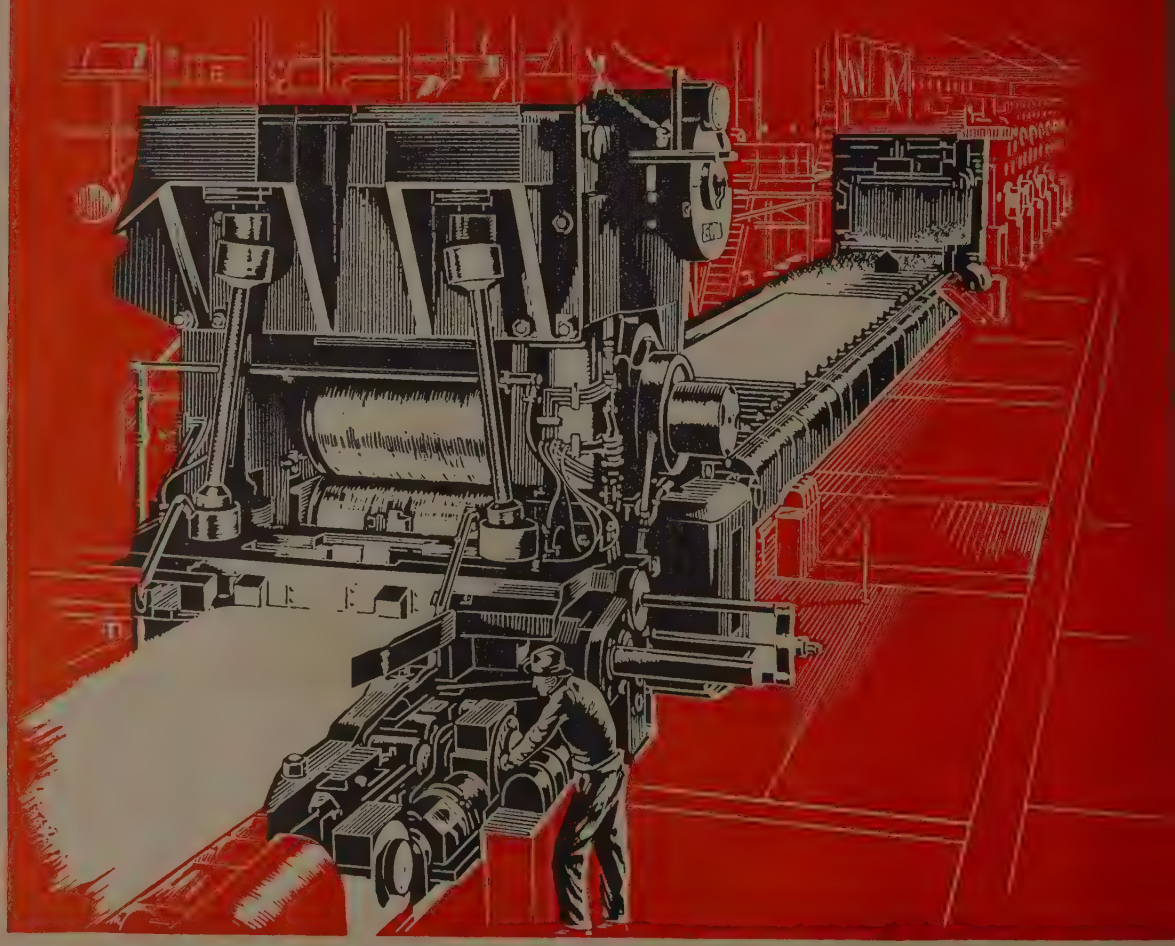
WRITE FOR DETAILS TODAY

Get facts on how you can speed up production, reduce scrap losses, and increase your work handling capacity with a Greenlee "6". Conversion parts are available for all Greenlee Sizes now in use. To avoid delays, write now for full details.

GREENLEE BROS. & CO.
1929 MASON AVENUE
ROCKFORD, ILLINOIS

MULTIPLE-SPINDLE DRILLING, BORING, TAPPING MACHINES • AUTOMATIC SCREW MACHINES • AUTOMATIC TRANSFER PROCESSING MACHINES

"MAINTENANCE COSTS CUT 20%



. . . since using Tycol E. P. Lubes"

TYCOL
INDUSTRIAL LUBRICANTS

Boston • Charlotte, N. C.
Pittsburgh • Philadelphia
Chicago • Detroit • Tulsa
Cleveland • San Francisco

TIDE WATER ASSOCIATED OIL COMPANY

"Nine years without a bearing failure . . .
Lubrication costs cut 70% . . .
No leakage at high temperatures . . .
No bearing ever overheated . . .
Service-life of equipment prolonged . . .".

These are a few of the reasons why Tycol Extreme Pressure Lubricants are acclaimed by engineers and operators as an answer to their lubrication problems. The know, too, that these performanc proved greases stand up in toug lubricating jobs . . . can "take it indoors and out.

Your nearest Tide Water Asso ciated Office will help you in th selection of that Tycol E. P. lu bricant best suited for your par ticular needs. Phone, write or wir today.

LUBRICATION—"ENGINEERED TO FIT THE JOB'

SEE IT IN ACTION

THE

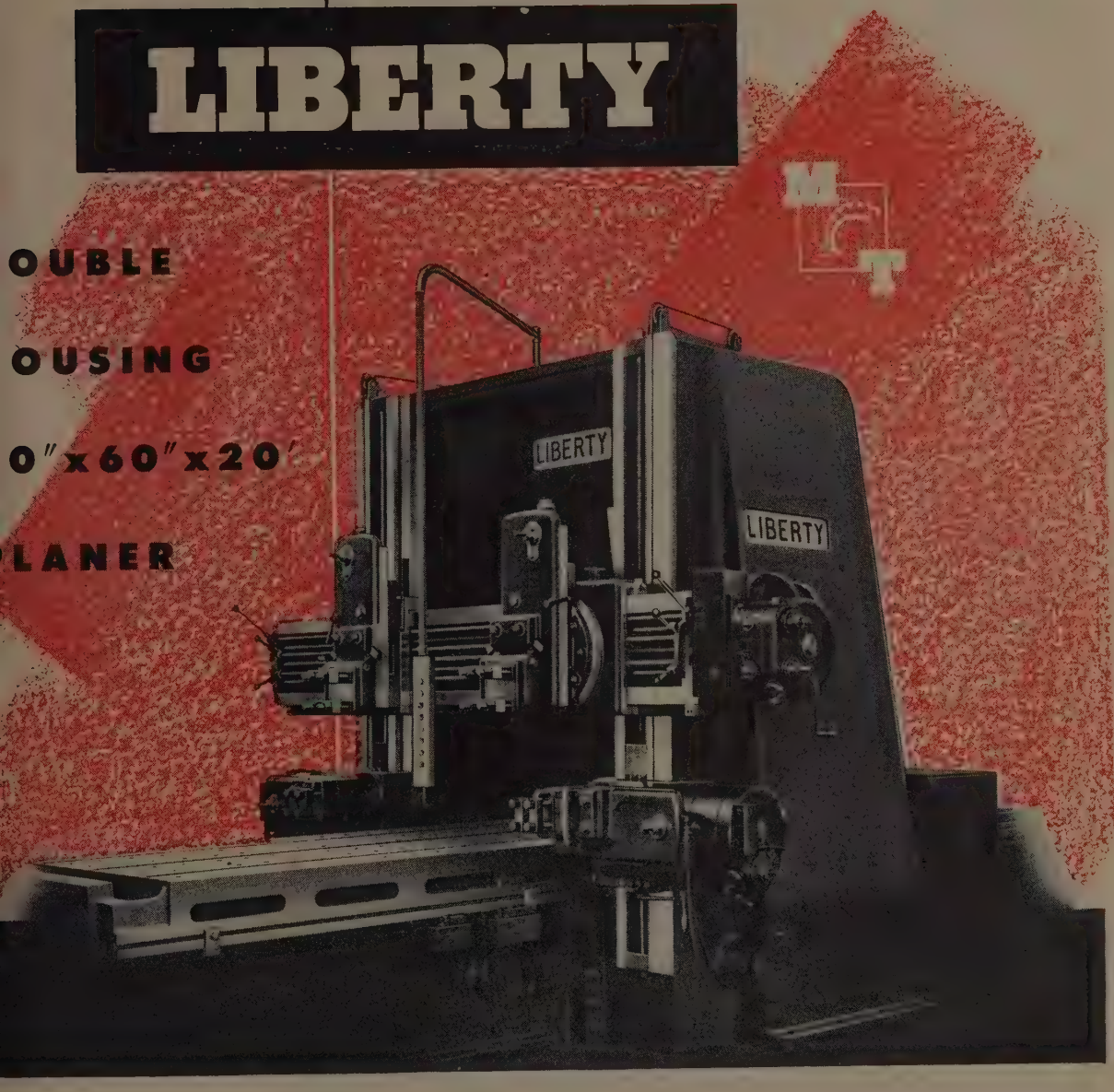
LIBERTY

OUBLE

OUSING

0"x60"x20'

LANER



The Giant Liberty Double Housing Planer Display at the Machine Tool Show exemplifies the outstanding features and excellence of design that characterize all Liberty Planers . . . including Double Housing, Open Side, and Convertible types.

VISIT BOOTH NO. 415

LIBERTY PLANERS, INC.

HAMILTON, OHIO

ENERAL DISTRIBUTORS: BRYANT MACHINERY AND ENGINEERING CO., 400 W. MADISON STREET, CHICAGO 6

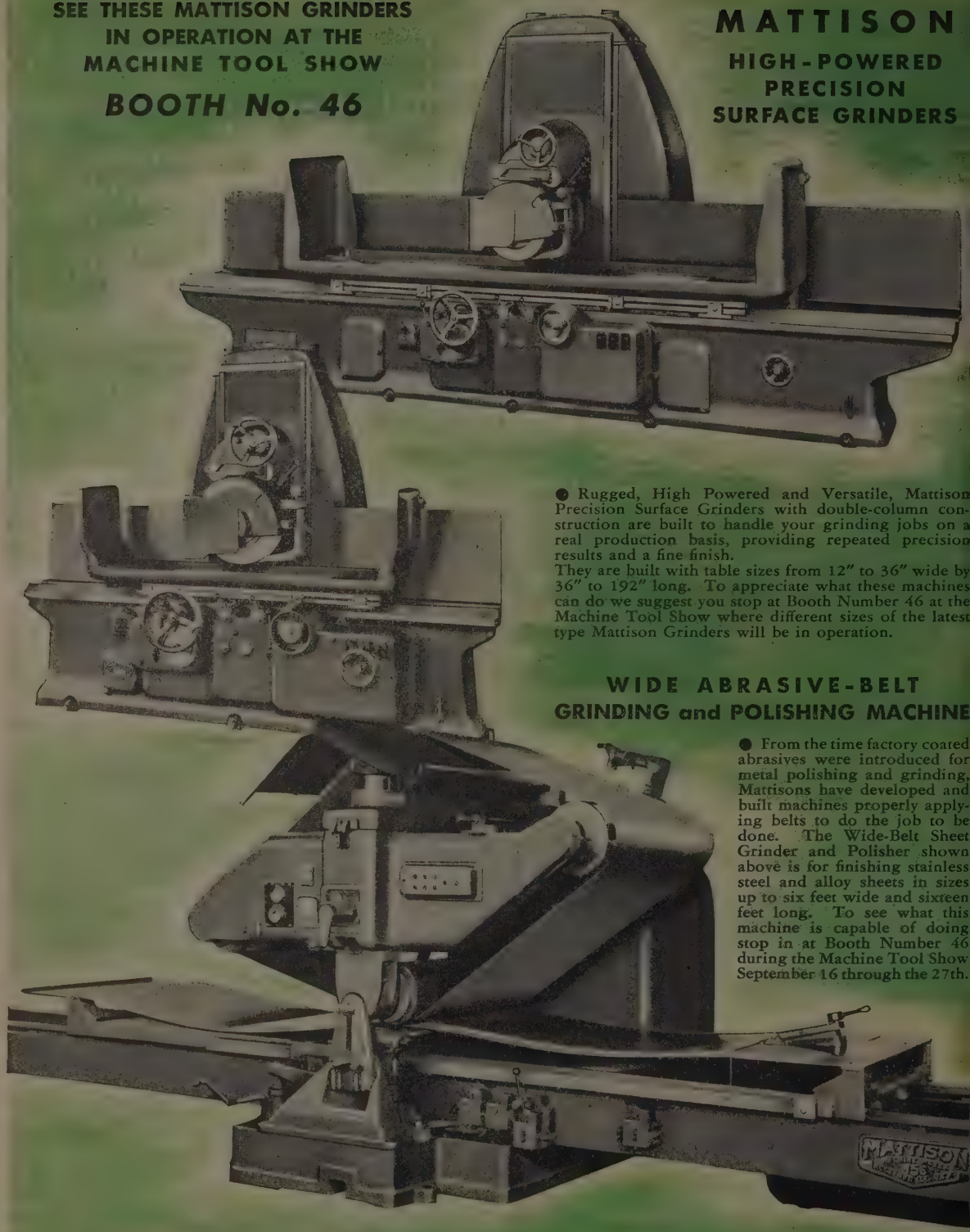
With Exclusive Representatives Throughout the World

SEE THESE MATTISON GRINDERS
IN OPERATION AT THE
MACHINE TOOL SHOW

BOOTH No. 46

MATTISON

HIGH-POWERED PRECISION SURFACE GRINDERS



● Rugged, High Powered and Versatile, Mattison Precision Surface Grinders with double-column construction are built to handle your grinding jobs on a real production basis, providing repeated precision results and a fine finish.

They are built with table sizes from 12" to 36" wide by 36" to 192" long. To appreciate what these machines can do we suggest you stop at Booth Number 46 at the Machine Tool Show where different sizes of the latest type Mattison Grinders will be in operation.

WIDE ABRASIVE-BELT GRINDING and POLISHING MACHINE

● From the time factory coated abrasives were introduced for metal polishing and grinding, Mattisons have developed and built machines properly applying belts to do the job to be done. The Wide-Belt Sheet Grinder and Polisher shown above is for finishing stainless steel and alloy sheets in sizes up to six feet wide and sixteen feet long. To see what this machine is capable of doing stop in at Booth Number 46 during the Machine Tool Show September 16 through the 27th.

MATTISON MACHINE WORKS

ROCKFORD • ILLINOIS

LITTLE BOLTS DO BIG JOBS on MACHINE TOOLS

THE importance of quality bolts in the assembly and operation of precision machine tools is recognized by builders and users alike. That's why so many select dependable Circle Ⓑ Bolts, such as the T-slot bolt illustrated, for machine tool applications.

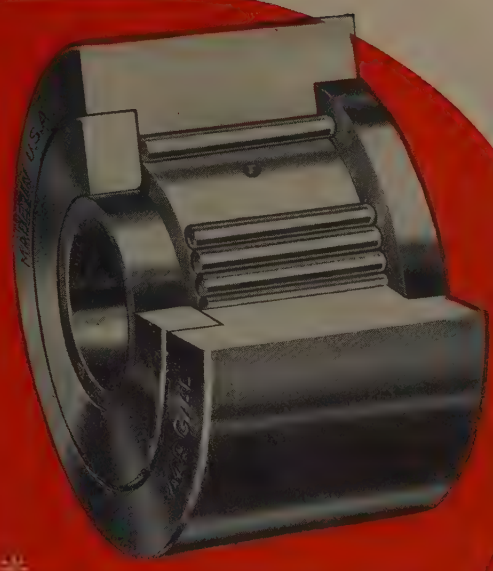
DID YOU KNOW *that cleaning is an important operation in the manufacture of quality bolts. Illustration shows bolts entering washing machine.*

Ⓑ BUFFALO BOLT COMPANY

NORTH TONAWANDA, N. Y. · SALES OFFICES IN PRINCIPAL CITIES

Export Sales Office: Buffalo International Corp., 50 Church Street, New York City

ANOTHER McGILL FIRST!



THE MULTIROL CAM YOKE ROLLER BEARING

McGill Selected for

• LONG LIFE • SMOOTH ACTION • DEPENDABILITY

***MULTIROL *CYR BEARINGS PROVIDE SMOOTH ACTION UNDER HEAVY LOAD in FOSDICK RADIAL DRILL PRESSES**

McGILL, INC., well known for its introduction of full type roller bearings in this country fifteen years ago, now presents the latest development in this versatile line: the MULTIROL CAM YOKE ROLLER BEARING. These CYR BEARINGS have been thoroughly tested and proven in cam action, guide and support roller applications, including the FOSDICK RADIAL DRILL PRESS, built by The Fosdick Machine Tool Co., Cincinnati, Ohio. In this application CYR BEARINGS are built into the column assembly to support the heavy overhanging weight of the swinging arm.

As an addition to the McGILL MULTIROL CAM FOLLOWER series, CAM YOKE ROLLER BEARINGS were designed for greater adaptability to your automatic machinery involving cam action or controlled motion of machine parts requiring guide or support rollers. Outer race sections are built extra heavy for shock load resistance, and an inner ring replaces the stud to accommodate a full range of shaft sizes. For complete information, write for the new McGILL CYR bulletin: McGill Manufacturing Company, Inc., 401 North Lafayette Street, Valparaiso, Indiana.

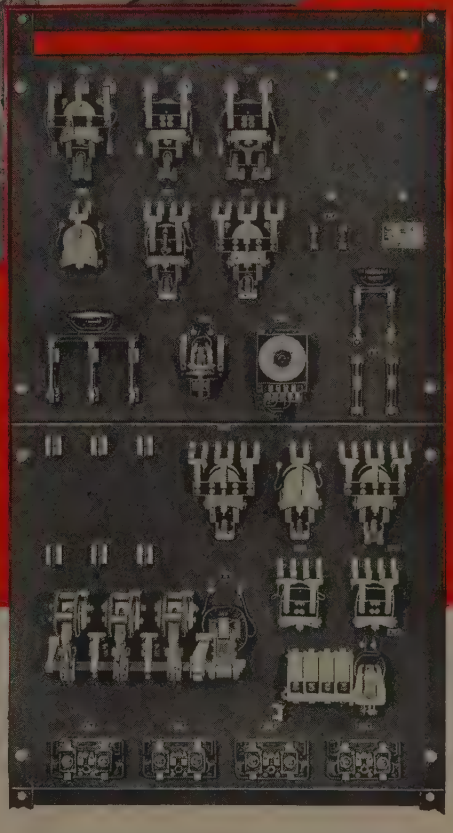
1947 MACHINE TOOL SHOW CHICAGO SEPT 17-26

SEE THE NEW MULTIROL CYR BEARING AT THE MACHINE TOOL SHOW BOOTH 549

McGILL precision bearings

CLARK **HEAVY-DUTY** ELECTRICAL CONTROL *used in* MACHINE TOOL SERVICE

Cross Company Rough Turning Lathe



Clark Control Panel for Rough Turning Lathe

● Pictured is a Rough Turning Lathe—center of a 3-unit Transfer-matic equipment line, developed by The Cross Company, Detroit, to cut off, center, turn, and finish face railroad car axles on a mass production basis.

From start to finish, the axles are untouched by human hands—and Clark Automatic Push-Button Control, including proper handling mechanism, served to cut costs.

The lathe has two 50 HP spindle motors, two 5 and one 1½ HP hydraulic pump motors, and 21 electrically operated solenoid valves.

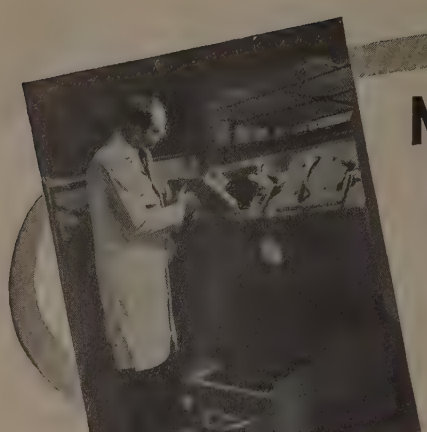
Clark **HEAVY-DUTY** control, designed for **HEAVY-DUTY** service, performs effectively in this **HEAVY-DUTY** operation.

Clark engineers can solve your STANDARD or HEAVY-DUTY Machine Tool Electrical Control problems.

VISIT OUR BOOTH 14A
NATIONAL MACHINE TOOL SHOW
Chicago, September 17-26

THE CLARK CONTROLLER CO.

EVERYTHING UNDER CONTROL • 1146 EAST 152nd STREET, CLEVELAND 10, OHIO



NEW COMPLETE LINE OF *ROTO-FINISH* MACHINES

TO DO YOUR MECHANICAL FINISHING *QUICKER, EASIER, MORE EFFICIENTLY*

FOUR new improved Roto-Finish Machines and labor saving accessories are now available for use with Roto-Finish mechanical finishing—to provide even greater savings in time, costs and labor!

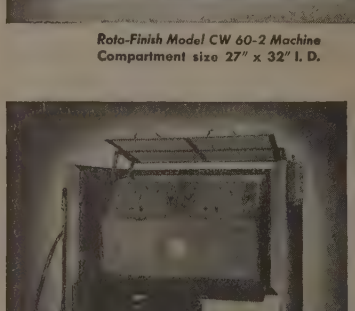
These features found in all four types of machines put your finishing operations on a speedier production basis:

1. Quick acting door mechanism. Light weight doors for easier, faster loading and unloading.
2. Rigid safety guard lifts easily, pivoting on positive control.
3. Hose and quick acting water valve mounted conveniently on frame of machine.
4. Integral mounted motor provides steady, stable drive. Easily accessible for maintenance. Shielded for water protection.
5. Machines have swivel type hoist pan for greater movability. Equipped with safety lock type cross bar for hoist operation.
6. Forward-reversing switch and magnetic brake control location of cylinder doors to facilitate loading and unloading.
7. All welded steel cylinders are hard wood lined. Compartments have patented relining feature.

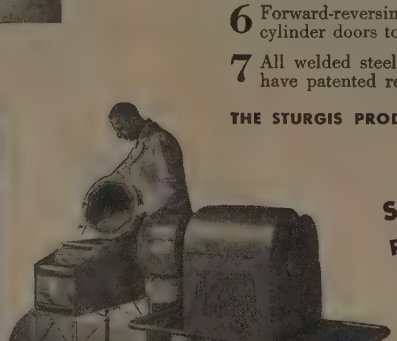
Roto-Finish Model CW 60-2 Machine
Compartment size 27″ x 32″ I. D.

THE STURGIS PRODUCTS CO., 794 JACOB ST., STURGIS, MICH.

SPEEDS HANDLING—
REDUCES LABOR BURDEN!

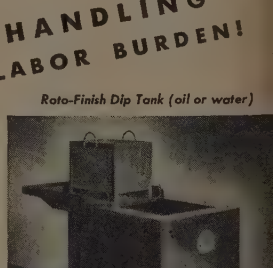


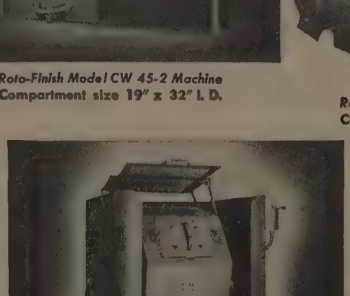
Roto-Finish Model CW 45-2 Machine
Compartment size 19″ x 32″ I. D.



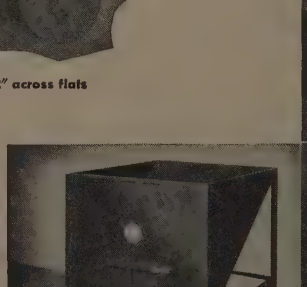
Roto-Finish Dual Midget Machine
Compartment size 8″ wide, 12″ across flats

Roto-Finish Dip Tank (oil or water)





Roto-Finish Model CW 22-1 Machine
Compartment size 19″ x 32″ I. D.



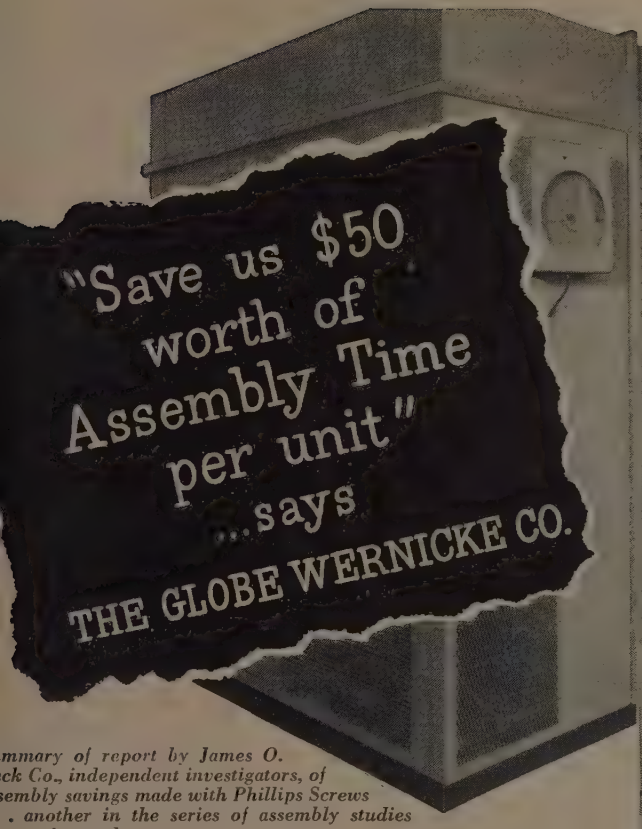
Roto-Finish Chip Bin

Roto-Finish Separating Table with Hopper

ROTO FINISH

Send For New Folder! Shows How You Can Save With Roto-Finish!

The Accepted Mechanical Finishing Process For Grinding, De-Burring, Polishing, Britehoning, Colorin



THE ICEBERG REFRIGERATED LOCKER COMPANY'S equipment for frozen food storage is made up in combinations of basic units like this 8-section (10 six-cubic-foot drawers to a section) locker.

mmary of report by James O. ck Co., independent investigators, of sembly savings made with Phillips Screws . another in the series of assembly studies prominent plants.

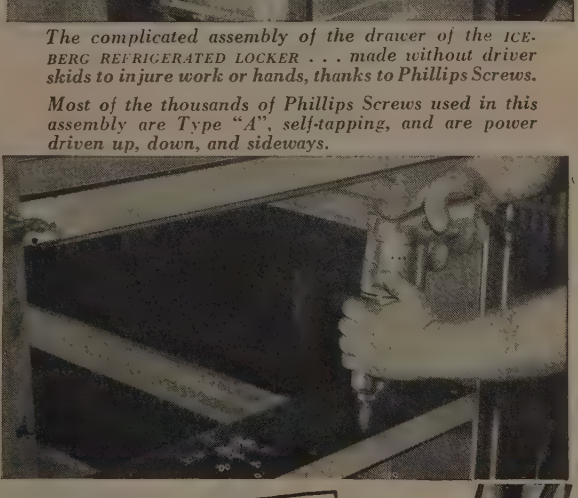
"We manufacture these units for the Iceberg Refrigerated ocker Systems, Inc," explained the assembly head of The lobe Wernicke Co. "Our engineering department specified hillips Screws throughout, and we're glad they did.

ave us $50 worth of assembly time per unit. We can take full lvantage of power drivers with Phillips Screws. No finder needed and there's no fumbling such as we'd have with otted screws. Since each unit requires thousands of screws, 50 is a conservative estimate of how much we save per unit using Phillips Screws.

pside down or sideways . . . Makes no difference. Screws are iven with the unit in one position so that much of the iving is sideways or upside down. Difficult with slotted rews but very easy with Phillips Screws.

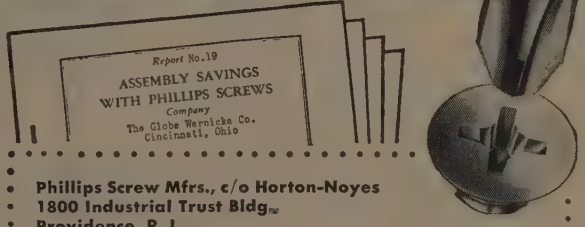
lo gouging or burring. Before we settled on Phillips, we tried ut a lot of other type screws and found the driver would mp out and gouge the Masonite panels or burr the heads. hillips Screws ended that, gave us better driving time with ur power drivers."

lp yourself to money-saving ideas for your assembly opera- ons. Write for the full report on The Globe Wernicke Co. d other assembly studies . . . covering metal, wood and astic products. Use the coupon.



The complicated assembly of the drawer of the ICEBERG REFRIGERATED LOCKER . . . made without driver skids to injure work or hands, thanks to Phillips Screws.

Most of the thousands of Phillips Screws used in this assembly are Type "A", self-tapping, and are power driven up, down, and sideways.



PHILLIPS *Recessed Head* **SCREWS**

ood Screws • Machine Screws • Self-tapping Screws • Stove Bolts

erican Screw Co.
tral Screw Co.
tinental Screw Co.
bin Screw Div. of
merican Hdwe. Corp.
o Tool & Screw Corp.,
H. M. Harper Co.
rnational Screw Co.
nson & Sessions Co.
ford Rivet and Machine Co.
ional Lock Co.

24 SOURCES

National Screw & Mfg. Co.
New England Screw Co.
Parker-Kalon Corporation
Pawtucket Screw Co.
Pheoll Manufacturing Co.
Reading Screw Co.
Russell Burdsall & Ward Bolt & Nut Co.
Scovill Manufacturing Co.
Shakeproof Inc.
The Southington Hardware Mfg. Co.
The Steel Company of Canada, Ltd.
Sterling Bolt Co.
Stronghold Screw Products, Inc.
Wolverine Bolt Company

Phillips Screw Mfrs., c/o Horton-Noyes
1800 Industrial Trust Bldg.,
Providence, R. I.

20-S

Send me reports on Assembly Savings with Phillips Screws.

Name .....

Company .....

Address .....

Visit Veeder-Root at the Machine Tool Show—Booth 402.

NEW BOOK on "VEEDER READINGS" . . . just off the press! 12 pages of Quick Information on VEEDER-ROOT COUNTROL . . . and how and where to use it to top advantage. Write for your copy to: Dept. 687.

VEEDER-ROOT INC., HARTFORD 2, CONN.

upply-Demand Balance in teel Not Yet in Sight

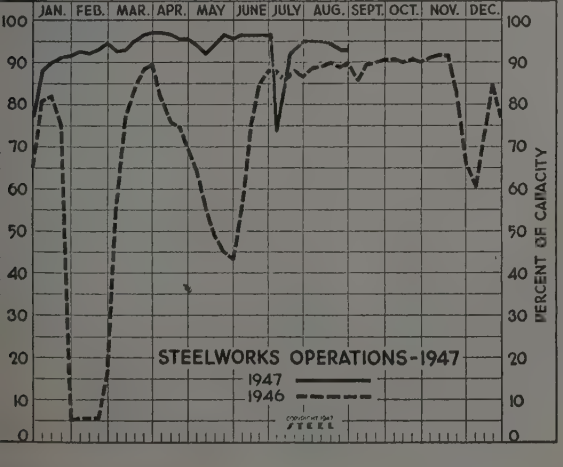
Little respite seen for hard-pressed steel mills seeking to match output with record-breaking peacetime demands. Shortages of scrap, coke and pig iron present production difficulties. Scrap price test expected in early September

COOLER weather and the end of the vacation season, ditionally signalled by the passing of Labor Day, may ult in some improvement in steel mill operations, but lications are the hard-pressed steel producers will en- little respite over coming months as they struggle to tch output with the most persistent demand ever ex- rienced in peacetime.

Most predictions with respect to demand-supply balance ade over recent months have fallen by the wayside. It w looks as though 1948 will be well on its way before ything approaching balance will be experienced in the jor products. Right now steel supply appears as tight at any time since the end of the war in practically of the major lines. Except for stainless and alloy els, cold-drawn bars and some classifications of wire, e general stringency is unrelieved by the heavy ship- nts over recent months, the situation being especially ute in the flat-rolled items.

Producers have been planning to bring their order books o balance by the end of this year, but the chances for aining such balance appear remote. This is particularly ie in sheets and strip. However, moving to effect lance, producers are cutting last quarter consumer otments with a view to wiping out expected heavy rd-quarter tonnage carryovers in the last three months the year.

So-called "gray" market operators continue to feed off e supply difficulties of consumers though conditions in s area of the market are slightly improved over the re- nt past, sellers being inclined toward more conservative cing than was the case some time ago. Substantial ton-



DISTRICT STEEL RATES

Percentage of Ingot Capacity engaged in Leading Districts

	Week Ended Aug. 30	Change	Same Week 1946	Same Week 1945
Pittsburgh	97.5	None	96.5	65
Chicago	90.5	None	92	81
Eastern Pa.	91	— 2	83	72
Youngstown	92	None	89	76
Wheeling	89	None	89	91
Cleveland	94.5	+ 1.5	90	83.5
Buffalo	88.5	None	90.5	65
Birmingham	99	None	93	95
New England	89	— 3	86	78
Cincinnati	87	None	84	80
St. Louis	82	None	54.5	65
Detroit	92	+ 4	91	89
Estimated national rate	93	None	90	75

Based on weekly steelmaking capacity of 1,749,928 net tons for 1947; 1,762,381 net tons for 1946; 1,831,636 tons for 1945.

nages of steel are moving in the "gray" market and the source of such steel is as much a mystery as ever. Withdrawal of some mills from participation in certain market areas to avoid high freight absorption is forcing a goodly number of manufacturers to turn to the "gray" market as they find it difficult, if not impossible, to make new mill supply connections.

Steel mill operations have been adversely affected in recent weeks by the hot weather and shortages of raw materials. Efforts will be made to up the ingot rate, but a major roadblock is the continued scarcity of raw materials, notably scrap, pig iron and coke.

Pricewise the steel market is firm at the levels established about Aug. 1 when prices generally were advanced $5 to $10 per ton. Except for revision in extras from time to time no further change in price schedules is in immediate prospect. The scrap market last week was conspicuous by the relative stability of prices following a couple weeks of easiness. Some high-priced scrap still is moving on old contracts and a real test of scrap prices is not expected until after the holiday. At the moment the market appears to have reached a temporary bottom as reflected in STEEL's composite scrap price of $37.83, down only eight cents from week preceding.

Steelmaking operations were unchanged last week, the national ingot rate averaging 93 per cent of capacity, equivalent to production of about 1,628,000 tons. While the Detroit district rate rose 4 points to 92 per cent and the Cleveland rate 1½ points to 94.5 per cent, operations dropped 3 points in New England to 89 per cent and 2 points in eastern Pennsylvania to 91 per cent.

STEEL's composite price average for finished steel held unchanged throughout August at $75.41 compared with $70.80 in July while the average for semifinished steel held at $56.80 compared with $53.04. Steelmaking pig iron price average eased to $36.28 last week from $36.56, reflecting the recent decline in scrap prices, making the August average $36.06 compared with $33.82 in July. Steelmaking scrap average eased slightly to $37.83 from $37.91, making the average for the month $39 compared with $37.23 in July, $32.48 in June, and $29.75 in May.

COMPOSITE MARKET AVERAGES

	Aug. 30	Aug. 23	Aug. 16	One Month Ago Aug., 1947	Three Months Ago June, 1947	One Year Ago Sept., 1946	Five Years Ago Sept., 1942
Finished Steel	$75.41	$75.41	$75.41	$75.41	$69.82	$64.45	$56.73
Semifinished Steel	56.80	56.80	56.80	56.80	52.10	40.60	36.00
Steelmaking Pig Iron	36.28	35.56	35.80	36.06	32.49	27.50	23.00
Steelmaking Scrap	37.83	37.91	38.50	39.00	32.48	19.17	19.17

Finished Steel Composite:—Average of industry-wide prices on sheets, strips, bars, plates, shapes, wire, nails, tin plate, standard and line pipe. Semifinished Steel Composite:—Average of industry-wide prices on billets, slabs, sheet bars, skelp and wire rods. Steelmaking Pig Iron Composite:—Average of basic pig iron prices at Bethlehem, Birmingham, Buffalo, Chicago, Cleveland, Neville Island, Granite City and Youngstown. Steelworks Scrap Composite:—Average of No. 1 heavy melting steel prices at Pittsburgh, Chicago and eastern Pennsylvania. Finished steel, net tons; others, gross tons.

COMPARISON OF PRICES

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

Finished material (except tin plate) and wire rods, cents per lb; coke, dollars per net ton; others, dollars per gross ton.

Finished Materials

	Aug. 30, 1947	Aug, 1947	June, 1947	Sept., 1946
Steel bars, Pittsburgh	2.90c	2.90c	2.60c	2.50c
Steel bars, Philadelphia	3.28	3.28	2.98	2.86
Steel bars, Chicago	2.90	2.90	2.50	2.50
Shapes, Pittsburgh	2.80	2.80	2.50	2.35
Shapes, Philadelphia	2.94	2.94	2.64	2.48
Shapes, Chicago	2.80	2.80	2.50	2.35
Plates, Pittsburgh	2.95	2.95	2.65	2.50
Plates, Philadelphia	3.15	3.15	2.85	2.558
Plates, Chicago	2.95	2.95	2.65	2.50
Sheets, hot-rolled, Pittsburgh	2.80	2.80	2.50	2.425
Sheets, cold-rolled, Pittsburgh	3.55	3.55	3.20	3.275
Sheets, No. 10 galv., Pittsburgh	3.90	3.90	3.55	†4.05
Sheets, hot-rolled, Gary	2.80	2.80	2.50	2.425
Sheets, cold-rolled, Gary	3.55	3.55	3.20	3.275
Sheets, No. 10 galv., Gary	3.90	3.90	3.55	†4.05
Strip, hot-rolled, Pittsburgh	2.80	2.80	2.50	2.45
Strip, cold-rolled, Pittsburgh	3.55	3.55	3.20	3.05
Bright basic, bess. wire, Pittsburgh	3.675	3.675	3.425	3.05
Wire nails, Pittsburgh	4.25	4.25	4.125	3.75
Tin plate, per base box, Pittsburgh	$5.75	$5.75	$5.75	*$5.25

* Nominal. † Base, No. 24 gage.

Semifinished Material

Sheet bars, Pittsburgh, Chicago	$60.00	$60.00	$50.00	$38.00
Slabs, Pittsburgh, Chicago	47.50	47.50	42.00	39.00
Rerolling billets, Pittsburgh	47.50	47.50	42.00	39.00
Wire rod ⅜ to ¼-inch, Pitts.	2.925c	2.925c	2.55c	‡2.30c

‡ Base, No. 5 to ⅜-in.

Pig Iron

	Aug. 30, 1947	Aug, 1947	June, 1947	Sept. 194
Bessemer, del. Pittsburgh	$37.83	$37.83	$34.83	$29.7
Basic, Valley	36.00	36.00	33.00	28.0
Basic, eastern del. Philadelphia	38.72	38.72	35.52	29.9
No. 2 fdry., del. Pgh. N. & S. sides	37.33	37.33	34.33	29.2
No. 2 fdry., del. Philadelphia	39.22	39.22	36.02	30.4
No. 2 foundry, Chicago	36.00	36.00	33.00	28.5
No. 2 foundry, Valley	36.50	36.50	33.50	28.5
Southern No. 2, Birmingham	34.88	34.51	29.88	24.8
Southern No. 2, del. Cincinnati	39.75	39.38	34.75	28.9
Malleable, Valley	36.50	36.50	33.50	28.5
Malleable, Chicago	36.50	36.50	33.50	28.5
Charcoal, low phos., fob Lyles, Tenn.	44.00	44.00	40.50	33.0
Ferromanganese, fob cars, Pittsburgh	140.25	140.25	140.25	140.0

Scrap

Heavy melt. steel, No. 1, Pittsburgh	$38.00	$39.875	$32.44	$20.0
Heavy melt. steel, No. 2, E. Pa.	36.75	37.88	33.38	18.7
Heavy melt. steel, No. 1, Chicago	38.75	39.625	30.75	18.7
Heavy melt. steel, No. 1, Valley	39.00	40.50	34.06	21.0
Heavy melt. steel, No. 1, Cleveland	38.25	38.81	32.38	19.5
Heavy melt. steel, No. 1, Buffalo	39.00	40.88	32.00	19.2
Rails for rerolling, Chicago	46.25	47.125	38.75	22.2
No. 1 cast, Chicago	43.50	43.50	39.50	23.7

Coke

Connellsville, beehive furnace	$12.00	$12.00	$9.56	$8.7
Connellsville, beehive foundry	14.50	14.50	10.75	9.5
Chicago, oven foundry, del.	18.50	18.50	16.10	15.1

FINISHED AND SEMIFINISHED IRON, STEEL PRODUCTS

Finished steel quoted in cents per pound and semifinished in dollars per gross ton, except as otherwise noted. Prices apply on an individual producer basis to products within the range of sizes, grades, finishes and specifications produced at its plants. Delivered prices do not include the 3 per cent federal tax on freight.

Semifinished Steel

Carbon Steel Ingots: Rerolling quality, standard analysis, price negotiated, fob mill. Forging quality $46, Pittsburgh, Chicago, Gary, Cleveland, Birmingham, Buffalo, Youngstown.

Alloy Steel Ingots: Pittsburgh, $56.

Rerolling Billets, Blooms, Slabs: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham, Youngstown, $45-$50, sales by smaller interests on negotiated basis at $65 or higher. Detroit, del., $53; eastern Mich., $54.

Forging Quality, Billets, Blooms, Slabs: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham, Youngstown, $55-$58; Detroit, del., $61; eastern Mich., $62.

Alloy Billets, Slabs, Blooms: Pittsburgh, Chicago, Buffalo, Bethlehem, Canton, Massillon, $66, del. Detroit $69, eastern Mich., $70.

Sheet Bars: Pittsburgh, Chicago, Cleveland, Buffalo, Canton, Sparrows Point, Youngstown, $60; sales by smaller interests on negotiated basis at $66 or higher.

Skelp: Pittsburgh, Sparrows Point, Youngstown, Coatesville, 2.60c-2.65c per lb.

Tube Rounds: Pittsburgh, Chicago, Gary, Cleveland, $69.

Wire Rods: Pittsburgh, Chicago, Birmingham, ⅜ to ¼-in., inclusive $2.80-3.05 per 100 lb. Galveston base, $2.95. Worcester, 2.90c. San Francisco (base del.), $3.22.

Bars

Hot-Rolled Carbon Bars and Bar-Size Shapes under 3-in.: Pittsburgh, Youngstown, Chicago, Gary, Cleveland, Buffalo, Birmingham, Duluth, base, 20 tons one size, 2.90c; Detroit, del., 3.05c; eastern Mich., 3.10c; New York, del., 3.31c; Phila., del., 3.28c; San Francisco (base, del), 3.63-3.95c; Los Angeles (base, del.), 3.625-3.86c; Seattle, 3.58c, base.

Rail Steel Bars: Same basing points as merchant carbon bars, except base is 10 tons. Prices upon application.

Hot-Rolled Alloy Bars: Pittsburgh, Youngstown, Chicago, Canton, Massillon, Buffalo, Bethlehem, base 20 tons one size, 3.30c; Detroit, del., 3.45c; eastern Mich., 3.50c. (Texas Steel Co. uses Chicago base price as maximum fob Fort Worth, Tex., price on sales outside Texas, Oklahoma.)

Cold-Finished Carbon Bars: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, base 20,000-39,999 lb., 3.55c; Detroit, del., 3.70c; Toledo, 3.75c.

Cold-Finished Alloy Bars: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Canton, base, 4.10c; Detroit, del., 4.25c; eastern Mich., 4.30c.

Reinforcing Bars (New Billet): Pittsburgh, Chicago, Gary, Cleveland, Birmingham, Sparrows Point, Buffalo, Youngstown, base, 2.75c; San Francisco (base, del.), 3.33c; Los Angeles (base, del), 3.325c; Seattle, 3.88c, base.

Reinforcing Bars (Rail Steel): Pittsburgh, Chicago, Gary, Cleveland, Birmingham, Youngstown, Buffalo, base price upon application.

Iron Bars: Single refined, Pittsburgh 7.15c-†7.70c; double refined, 8.00-†9.75c; Pittsburgh, staybolt, 8.85c-†11.25c.

† Hand puddled.

Sheets

Hot-Rolled Sheets (18 gage and heavier): Pittsburgh, Chicago, Gary, Cleveland, Birmingham, Buffalo, Youngstown, Sparrows Point, Ashland, Ky., base, 2.80c; Granite City, 3.175c; Detroit, del., 2.95c; eastern Mich., del., 3.00c; Philadelphia, del., 3.00c; New York, del., 3.09c; Los Angeles (base, del.), 3.54c; San Francisco, (base, del.), 3.545c. (Andrews Steel Co. quotes Middletown, O., base for shipment to Detroit. Alan Wood Steel Co., Conshohocken, Pa., quotes 3.40c, Sparrows Point equivalent.

Cold-Rolled Sheets: Pittsburgh, Chicago, Cleveland, Gary, Buffalo, Youngstown, Middletown base, 3.55c; Granite City, 3.65c; Detroit, del. 3.70c; eastern Mich., del., 3.75c; New York del., 3.96c; Philadelphia, del., 3.93c.

Galvanized Sheets, No. 10: (Based on 5 cent zinc) Pittsburgh, Chicago, Gary, Birmingham, Youngstown, Sparrows Point, Canton, Middletown, base 3.85c-3.95c; Granite City, 4.05; New York, del., 4.24c; Philadelphia, del. 4.15c; Los Angeles (base, del.), 4.62c; San Francisco (base, del.), 4.625c.

Corrugated Galvanized Sheets, No. 10: (Based on 5 cent zinc) Pittsburgh, Chicago, Gary, Birmingham base, 4.05c.

Culvert Sheets, No. 16 flat: (Based on 5 cent zinc), corrugated 10 cents extra; Pittsburgh, Chicago, Gary, Birmingham: Copper alloy 4.55c; copper-iron or pure iron, 4.90c. Granite City base prices 10 points higher. Los Angeles (base, del.), 5.24c; San Francisco (base, del. 5.245c.

Aluminized Sheets: Hot-dipped, coils or cut lengths: Pittsburgh, 7.50c.

Long Ternes, No. 10: Pittsburgh, Chicago, Gary, base, 3.85c-4.05c.

Enameling Sheets, †No. 12: Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Middletown base, 3.95c; Granite City, base, 4.05c; Detroit, del., 4.10c; eastern Mich., 4.15c.

Electrical Sheets, No. 24: Field: Pittsburgh, Chicago, Gary, 4.50c; Kokomo, Ind., 4.60. Armature: Pittsburgh, Chicago, Gary, 4.80. Granite City, Ill., Kokomo, Ind., 4.90c. Electrical: Pittsburgh, Chicago, Gary, 5.30. Granite City, Kokomo, 5.40c. Motor: Pittsburgh, Chicago, Gary, 6.05c; Granite City, 6.15c. Dynamo: Pittsburgh, 6.75c; Granite City, 6.85. Transformer 72, 7.25c; 65, 7.95c; 58, 8.65; 52, 9.45c, Pittsburgh.

rip

-Rolled Strip: Pittsburgh, Chicago, Gary, mingham, Youngstown, base, 2.80c; Detroit, , 2.95c; eastern Mich., del., 3.00c; San ncisco (base del.), 3.605c; Los Angeles se del.), 3.60c.

d-Rolled Strip, 0.25 carbon and less: Pitts-gh, Cleveland, Youngstown, 3.55c; Chicago, e, 3.65c; Detroit, del. 3.70c; eastern Mich., 5c; Worcester, base, 3.75c-4.10c.

d-Finished Spring Steel: Pittsburgh, Cleve-d base: 0.26-0.40 carbon, 3.55c; over 0.40 to) carbon, 5.05c; over 0.60 to 0.80, 5.65c; r 0.80 to 1.00, 7.15c; over 1.00, 9.45c; add 0c for Worcester.

n, Terne, Plate

Plate: Pittsburgh, Chicago, Gary, Warren, 100-lb base box, $5.75; Granite City, Bir-gham, Sparrows Point, $5.85.

ctrolytic Tin Plate: Pittsburgh, Gary, War-, O., 100-lb base box 0.25 lb tin, $4.85; 0.50 tin, $5.05; 0.75 lb tin, $5.25; Granite City, mingham, Sparrows Point, $4.95 $5.15, 35, respectively.

Mill Black Plate: Pittsburgh, Chicago, y, Warren, O., base 29-gage and lighter, 0c; Granite City, Birmingham, Sparrows nt, 3.70c.

nufacturing Ternes (Special Coated): Pitts-gh, Chicago, Gary, 100-lb base box $4.90; nite City, Birmingham, Sparrows Point, 00.

ofing Ternes: Pittsburgh base per package sheets; 20 x 28 in., coating I.C. 8-lb .50; 15-16 $15.50.

ates

bon Steel Plates: Pittsburgh, Chicago, y, Cleveland, Birmingham, Youngstown, rrows Point, 2.95c; Coatesville, Claymont, 5c; Geneva, Utah, 3.10c; New York, del. 4c; Phila., del., 3.15c; St. Louis, del., 2.77c; ton, del., 3.16c; San Francisco and Los geles, del., 3.29c-3.46c. ntral Iron & Steel Co., Harrisburg, Pa., 5c, basing points.)

or Plates: Pittsburgh, Chicago, 4.20c.

n-Hearth Alloy Plates: Pittsburgh, Chicago, 0c-4.137c; Coatesville, 4.50c.

d Steel Plates: Coatesville, 10% cladding: kel clad, 21.50c; inconel-clad, 30.00c; nel-clad. 29.00c.

apes

uctural Shapes: Pittsburgh, Chicago, Gary, mingham, Buffalo, Bethlehem, 2.80c; New rk, del., 3.00c; Phila., del., 2.94c; Geneva, h (base, del.), 2.975c; Los Angeles (base,), 3.17c-3.41c; Los Angeles and San Fran-co (sizes produced at Geneva only), del., 4c; Kaiser, del., San Francisco, 3.41c. oenix Iron Co., Phoenixville, Pa., nominally, 0c, fob Phoenixville.)

oy Structural Shapes: Pittsburgh, Chicago, 5c.

el Piling: Pittsburgh, Chicago, Buffalo, 30 per 100 lb.

ire and Wire Products

b Pittsburgh, Chicago, Cleveland and Bir-gham per 100 pounds).

re to Manufacturers in carloads

ght, basic or bessemer *$3.55–3.80
ing (except Birmingham)....**$4.25–**4.50

re Products to Trade

ls

ndard and cement-coated..... †$4.25
vanized ..... ‡$4.00
ples, polished and galvanized..... $4.25

e, Merchant Quality

nealed (6 to 8 base) ..... §$4.20
vanized (6 to 8 base)..... §$4.65
b Pittsburgh, Chicago, Birmingham, per e column)

ven fence, 15 gage and heavier... ††91
rbed wire, 80-rod spool..... ††101
rbless wire, twisted 101
ce posts (no clamps) ..... ††90
e ties, single loop ..... ††91

Worcester, $3.65, Duluth, $3.60, base. San ncisco (base, del) $4.56 for bright basic y.

* Worcester $4.60, Duluth and Trenton, J., $4.75, base. San Francisco (base, del.) 63 for MB spring wire; $5.28 black premier. Worcester $4.55, Cleveland $4.35, base. San ncisco (base, del.) $5.33.

Duluth $4.00, Cleveland $4.10, base. San ncisco (base, del.) $5.08.

Worcester $4.30, annealed; $4.75, galvan-d. Duluth $4.20, annealed; $4.65, galvanized. n Francisco (base, del.) $5.21, annealed; 66, galvanized.

† San Francisco (base, del.): Woven fence, ; barbed wire, 121; bale ties, 115. Duluth se): Woven fence, 91; barbed wire, 101; ce posts 90.

Rails, Supplies

Rails: Standard, over 60-lb fob mill, $2.75 per 100 lb. Light rails (billet), Pittsburgh, Birmingham, $3.10 per 100 lb; light rails (rail steel), Williamsport, Pa., Pittsburgh prices upon application.

Relaying, 60 lb and over fob warehouse $55-$56 per net ton.

Supplies: Track bolts, 7.00c; heat treated, 7.25c. Tie plates, $3.05 per 100 lb, fob mill; $3.40 base, Seattle; $3.20, base, Pittsburg, Calif. Splice bars, $3.25 per 100 lb, fob mill. Standard spikes, 4.00c-4.50c; screw spikes, 5.80c-6.40c. Axles, 4.10c.

Tubular Goods

Standard Steel Pipe: Base price in carlots, threaded and coupled, to consumers about $200 a net ton. Base discounts Pittsburgh on all types; Lorain on steel butt weld, and seamless; Gary, Ind., 2 points less on steel lap weld and 1 point less on steel butt weld on sizes produced in that district.

	Butt Weld				
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	46	19½	1	56	41½
¼	47	25	1¼	56½	42
⅜	44	22	1½	57	42½
½	50½	34½	2	57½	43
¾	53½	38½	2½ & 3	58	43½

	Lap Weld		Elec. Weld		Seamless	
In.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
2	49	34	48½	33½	48	33
2½-3.	52	37	51½	36½	51	36
3½-6.	54	39	53½	38½	53	38

Line Steel Pipe: Base price in carlots to consumers about $200 a net ton. Base discounts Pittsburgh and Lorain, O.

In.	Butt Weld	In.	Butt Weld
⅛	45	1	55
¼	46	1¼	55½
⅜	43	1½	56
½	49½	2	56½
¾	52½	2½ & 3	57

In.	Lap Weld	Elec. Weld	Seamless
2	48	47½	47
2½ & 3	51	50½	50
3½-6	53	52½	52
8	53½	53	52½
10	53	52½	52
12	52	51½	51

Boiler Tubes: Net base prices per 100 ft, fob Pittsburgh, in carload lots, minimum wall thickness, cut lengths 4 to 24 feet, inclusive.

O.D.		—Seamless—		—Elec. Weld—	
		Hot	Cold	Hot	Cold
Sizes	B.W.G.	Rolled	Drawn	Rolled	Drawn
1"	13	....	$11.87	$11.51	$11.51
1¼"	13	....	14.06	11.48	13.64
1½"	13	$13.08	15.69	12.69	15.22
1¾"	13	14.88	17.85	14.43	17.31
2"	13	16.67	19.99	16.17	19.39
2¼"	13	18.58	22.29	18.02	21.62
2½"	12	20.47	24.54	19.86	23.80
2¼"	12	22.42	26.87	21.75	26.06
2¾"	12	23.76	28.48	23.05	27.63
3"	12	24.93	29.90	24.18	29.00
3¼"	11	29.03	34.81	28.16	33.77
3½"	11	31.17	37.39	30.23	36.27
4"	10	38.69	46.38	37.53	44.99
4½"	9	51.28	61.50	....	....
5"	9	59.39	71.18	....	....
6"	7	91.13	109.27	....	....

Pipe, Cast Iron: Class B, 6-in. and over $74.50 per net ton, Birmingham; $79.50, Burlington, N. J.; $85.06, del. Chicago; 4-in. pipe, $5 higher; Class A pipe, $5 a ton over Class B. Prices effective as of July 24, 1947.

Bolts, Nuts

Fob Pittsburgh, Cleveland, Birmingham, Chicago; add 15c per cwt, Lebanon, Pa. Additional discounts: 5 for carloads; 15 for full containers, except tire, step and plow bolts.

Carriage and Machine Bolts

½-in. and smaller; up to 6 in. in length ..... 48 off
⅝ and ⅝ x 6-in. and shorter..... 50 off
Larger diameter; longer than 6 in..... 47 off

Tire bolts ..... 38 off
Step bolts ..... 46 off
Plow bolts ..... 57 off
Lag bolts
¼ in. up to 1 in., 6 in. and shorter.. 50 off
¼ in. up to 1 in., longer than 6 in.,. 48 off

Stove Bolts

In packages, nuts separate, 65-10 off; bulk 75 off on 15,000 of 3-in. and shorter, or 5000 over 3-in., nuts separate.

Nuts

Semifinished hexagon	A.S. Light	A.S. Reg. and Heavy
⅞-in. and smaller	51 off	....
½-in. and smaller	.....	50 off
⅞-in.-1-in.	48 off	....
⅞-in.-1-in.	.....	49 off
1⅛-in.-1½-in.	46 off	47 off
1⅝-in. and larger	.....	40 off

Additional discount of 15 for full containers.

Hexagon Cap Screws

Upset 1-in. smaller (10-20 bright)..... 56 off
Upset (10-35 heat treated)
⅝ x 6 ..... 51 off
¾, ⅞, & 1 x 6 ..... 47 off

Square Head Set Screws

Upset 1-in. and smaller ..... 61 off
Headless, ¼-in. and larger ..... 46 off
No. 10 and smaller ..... 56 off

Rivets

Fob Pittsburgh, Cleveland, Chicago Birmingham

Structural 5.25c
Lebanon, Pa. 5.40c
⅞-in. and under ..... 55-5 off
Lebanon, Pa. ..... 55-5 off plus 15c per cwt.

Washers, Wrought

Fob Pittsburgh, Chicago, Philadelphia, to jobbers and large nut and bolt manufacturers, lcl ..... $1.50-$2.00 off

Tool Steels

Tool Steel: Pittsburgh, Bethlehem, Syracuse, Canton, O., Dunkirk, N. Y., base, cents per lb; reg. carbon 16.00-17.00c; extra carbon 20.00c; special carbon 24.00c; oil-hardening 26.00c; high carbon-chromium 47.00c.

W	Cr	V	Mo	Base, per lb
18.00	4	1	...	82.00c
1.5	4	1	8.5	59.00c
12	3	0.50	...	67.00c
6.40	4.15	1.90	5	63.00c
5.50	4.50	4	4.50	80.00c

Stainless Steels

	Base, Cents per lb				
Grade	Bars, Drawn Wire, Structurals	Plate	Sheets	Hot Rolled Strip	Cold Rolled Strip
CHROMIUM NICKEL STEELS					
301....	26.00c	29.50c	37.00c	22.00c	28.00c
302....	26.00	29.50	37.00	23.50	30.50
303....	28.50	31.50	39.00	29.50	36.00
304....	27.50	31.50	39.00	25.50	32.50
308....	31.50	37.00	44.50	31.00	38.00
309....	39.00	43.50	51.00	40.50	51.00
310....	53.50	56.50	57.50	53.00	61.00
316....	43.50	48.00	52.00	43.50	52.00
321....	31.50	37.00	44.50	32.00	41.50
347....	36.00	41.50	49.00	36.00	45.50
431....	21.00	24.00	31.50	19.00	24.50
440A ..	26.00	31.00	36.50	26.00	30.50
STRAIGHT CHROMIUM STEEL					
403....	23.50	27.00	32.00	23.00	29.50
410....	20.50	23.50	29.00	18.50	24.00
416....	21.00	24.00	29.50	20.00	25.50
420....	26.00	31.00	36.50	26.00	39.50
430....	21.00	24.00	31.50	19.00	24.50
430F ..	21.50	24.50	32.00	20.50	27.00
442....	24.50	28.00	35.50	26.00	35.00
443....	24.50	28.00	35.50	26.00	35.00
446....	30.00	33.00	39.50	38.00	56.50
*501...	9.00	13.00	17.50	13.00	18.50
*502...	10.00	14.50	18.50	14.50	19.50
†STAINLESS CLAD STEEL (20%)					
304....	....	24.00	22.00	....	....
410....	....	22.00	20.00	....	....
430....	....	22.50	20.50	....	....
446....	....	29.00	27.00	....	....

* Low chromium. † Fob Pittsburgh and Washington, Pa.; plate prices include annealing and pickling

RAW MATERIAL AND FUEL PRICES

Minimum delivered prices do not include 3 per cent federal tax.

PIG IRON

Per Gross Ton	No. 2 Foundry	Basic	Bessemer	Malleable
Bethlehem, Pa., base	$37.50	$37.00	$38.50	$38.00
Newark, N. J., del.	39.34	38.84	40.34	39.84
Brooklyn, N. Y., del.	40.50	....	....	41.00
Philadelphia, del.	39.22	38.72	40.22	39.72
Birdsboro, Pa., base	40.50	40.00	41.50	41.00
Birmingham, base	33.38*	32.88*	....	....
Baltimore, del.	39.78	....	....	....
Chicago, del.	37.12	....	....	....
Cincinnati, del.	38.25	....	37.75	....
Newark, N. J., del.	39.46	....	....	....
Philadelphia, del.	38.84	....	....	....
St. Louis, del.	37.37	....	36.87	....
Buffalo, base	*36.00	*35.50	37.00	*36.50
Boston, del.	42.48	41.98	43.48	42.98
Rochester, del.	37.84	37.34	38.84	38.34
Syracuse, del.	38.50	38.00	39.50	39.00
Canton, Massillon, O., base	36.00	35.50	....	36.50
Chicago, base	36.00	35.50	37.00	36.50
Milwaukee, del.	37.32	36.82	38.32	37.83
Muskegon, Mich., del.	39.83	....	....	40.33
Cleveland, fob furnace	*36.00	*35.50	37.00	*36.50
Akron, del.	37.67	37.17	38.67	38.17
Duluth, base	36.50	36.00	37.50	37.00
Erie, Pa., base	36.00	35.50	37.00	36.50
Everett, Mass., base	45.00	....	....	45.50
Granite City, Ill., base	37.00	36.50	....	37.00
St. Louis, del.	37.75	37.25	....	37.75
†**Neville Island, Pa., base**	36.50	36.00	37.00	36.50
Pittsburgh, del., N. & S. Sides	37.33	36.83	37.83	37.33
Provo, Utah, base	37.50	37.00	....	....
Seattle, Tacoma, Wash., del.	41.60	....	....	....
Portland, Oreg., del.	41.60	....	....	....
Sharpsville, Pa., base	36.50	36.00	37.00	36.50
Steelton, Pa., base	37.50	37.00	38.50	38.00
Struthers, O., base	37.00	36.50	37.50	37.00
Swedeland, Pa., base	41.50	41.00	42.50	42.00
Troy, N. Y., base	38.00	37.50	39.00	38.50
Toledo, O., base	36.00	35.50	37.00	36.50
Cincinnati, del.	39.50	39.00	....	....
Youngstown, O., base	36.50	36.00	37.00	36.50
Mansfield, O., del.	39.48	38.98	39.98	39.48

† To Neville Island base add; 66c for McKees Rocks, Pa., $1.01 Lawrenceville, Homestead, McKeesport, Ambridge, Monaco, Aliquippa; 97c (water), Monongahela; $1.33. Oakmont, Verona: $1.49 Brackenridge.

* Republic Steel Corp. quotes $3 a ton higher at Birmingham, effective Aug. 13; $4 higher at Buffalo and $3.75 higher at Cleveland, effective on shipments during week ended Aug. 30.

Blast Furnace Silvery Pig Iron

6.00-6.50 per cent (base)	$45.50		
6.51-7.00	$46.75	9.01- 9.50	53.00
7.01-7.50	48.00	9.51-10.00	54.25
7.51-8.00	49.25	10.01-10.50	55.50
8.01-8.50	50.50	10.51-11.00	56.75
8.51-9.00	51.75	11.01-11.50	58.00

Fob Jackson, O., per gross ton; Buffalo base $1.25 higher. Buyer may use whichever base is more favorable.

Bessemer Ferrosilicon

Prices same as for high silicon silvery iron, plus $1 per gross ton.

Electric Furnace Silvery Pig Iron: Si 14.01-14.50%, $66.75, Jackson, O.; $70, Niagara Falls; $74, piglets, $72, open-hearth and foundry grade, Keokuk, Iowa. Add $1 a ton for each additional 0.5% Si to 18%; 50c for each 0.5% Mn over 1%; $1 a ton for 0.045% max. phos.

Charcoal Pig Iron

Semi-cold blast, low phosphorus. Fob furnace, Lyles, Tenn.....$44.00 (For higher silicon irons a differential over and above the price of base grade is charged as well as for the hard chilling iron, Nos. 5 and 6.)

Gray Forge

Neville Island, Pa. $36.00

Low Phosphorus

Steelton, Pa., Buffalo, Troy, N. Y., $42.00; Birdsboro, Pa., $45 base; Philadelphia, $44.22, del. Intermediate phosphorus, Central furnace, Cleveland, $39.00.

Differentials

Basing point prices are subject to following differentials:

Silicon: An additional charge of 50 cents a ton for each 0.25 per cent silicon in excess of base grade (1.75% to 2.25%).

Phosphorus: A reduction of 38 cents a ton for phosphorus content of 0.70 per cent and over.

Manganese: An additional charge of 50 cents a ton for each 0.50 per cent, or portion thereof, manganese in excess of 1%.

Nickel: An additional charge for nickel content as follows: Under 0.50%, no extra; 0.50% to 0.74%, inclusive, $2 a ton; for each additional 0.25% nickel, $1 a ton.

Metallurgical Coke

Price Per Net Ton

Beehive Ovens

Connellsville, furnace	$11.50-$12.50
Connellsville, foundry	14.00- 15.00
New River, foundry	12.50
Wise county, foundry	11.15
Wise county, furnace	10.65

Oven Foundry Coke

Kearney, N. J., ovens	$17.85
Chicago, outside del.	17.50
Chicago, del	18.50
Terre Haute, del.	18.05
Milwaukee, ovens	18.25
New England, del.	17.25
Birmingham, del.	15.00
Indianapolis, ovens	17.00
Cincinnati, del.	16.50
Ironton, O., ovens	15.50
Painesville, ovens	16.60
Cleveland, del.	17.90
Buffalo, del.	18.25
Detroit, del.	17.65
Philadelphia, ovens	16.75
Swedeland, Pa., ovens	16.75
Portsmouth, O., ovens	16.00
Fairmont, W. Va., ovens	15.75
Pittsburgh, del.	17.61

Coal Chemicals

Spot, gal. freight allowed east of Omaha. Effective as of Apr. 1, 1947.

Pure and 90% benzol	19.00c
Toluol, two degrees	23.00c
Industrial xylol	23.00c
Solvent naphtha	26.00c

Per pound fob works

Phenol (car lots, returnable drums)	11.25c
Do., less than carlots	12.00c
Do., tank cars	10.25c

Eastern plants, per pound

Naphthalene flakes, balls, bbl, to jobbers, "house-hold use"	9.50c

Per ton, bulk, fob plants

Sulphate of ammonia	$30.00

Refractories

Per 1000, fob shipping point Net Prices

Fire Clay Brick

Super Duty

Pa., Mo., Ky.	$87.00

High Heat Duty

Pa., Ill., Md., Mo., Ky.	70.00
Ala., Ga.	70.00
N. J.	75.00

Intermediate Heat Duty

Ohio	64.00
Pa., Ill., Md., Mo., Ky.	64.00
Ala., Ga.	56.00
N. J.	67.00

Low Heat Duty

Pa., Md., Ohio	56.00

Ladle Brick

(Pa., O., Va., Mo.)

Dry Press	47.00
Wire Cut	45.00

Malleable Bung Brick

All bases	80.00

Silica Brick

Pennsylvania	70.00
Joliet, E. Chicago	79.00
Birmingham, Ala.	70.00

Magnesite

Domestic dead-burned grains, net ton, fob Chewelah, Wash.	
Bulk	24.00
Single bags	28.00

Basic Brick

Net tons, fob Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick	59.00
Chem. bonded chrome	59.00
Magnesite brick	81.00
Chem. bonded magnesite	70.00

Ores

Lake Superior Iron Ore

Gross ton, 51½% (Natural) Lower Lake Ports

Old range bessemer	$5.95
Old range nonbessemer	5.80
Mesabi bessemer	5.70
Mesabi nonbessemer	5.55
High phosphorus	5.55

Eastern Local Ore

Cents, units, del. E. Pa.

Foundry and basic 56-63% contract	15.25

Foreign Ore

Cents per unit, cif Atlantic ports

No. African low phos.	Nom.
Swedish basic, 60 to 68%	13.50
Spanish, No. African basic, 50 to 60%	Nom.
Brazil iron ore, 68-69% fob Rio de Janeiro, nom.	5.50–6.50

Tungsten Ore

Wolframite and scheelite per short ton unit, duty paid	$32–$34

Manganese Ore

46-50%, duty paid, fob cars, New York, Philadelphia, Baltimore, Norfolk, Va., Mobile, Ala., New Orleans, 63.00c-67.00c.

Chrome Ore

Gross ton fob cars, New York, Philadelphia, Baltimore, Charleston, S. C., Portland, Oreg., or Tacoma, Wash.

(S S paying for discharge; dry basis, subject to penalties if guarantees are not met.)

Indian and African	
48% 2.8:1	$37.50
48% 3:1	39.00
48% no ratio	31.00
South African (Transvaal)	
44% no ratio	$27-$27.50
45% no ratio	28.00
48% no ratio	30.00
50% no ratio	31.00
Brazilian—nominal	
44% 2.5:1 lump	$33.63
48% 3:1 lump	43.50
Rhodesian	
45% no ratio	$27-$27.50
48% no ratio	30.00
48% 3:1 lump	39.00
Domestic (seller's nearest rail)	
48% 3:1	$39.00

Molybdenum

Sulphide conc., lb., Mo. cont., mines	$0.75

Fluorspar

Metallurgical grade, fob shipping point in Ill., Ky., net tons, car loads, effective CaF² content, 70% or more, $33; 65% to 70%, $32; 60% to 65%, $31; less than 60% $30.

HIGH-STRENGTH—LOW-ALLOY STEELS

Prices in dollars per 100 pounds

	Pittsburgh	Chicago	Gary	Youngstown	Sparrows Point	Buffalo	Bethlehem	Canton	Massillon
Sheets, Hot-Rolled	4.30	4.30	4.30	4.30	4.30	4.30	...	...	...
Cold-Rolled	5.30	5.30	5.30	5.30	...	5.30	...	...	...
Galvanized	5.85	...	...	...	...	...	...	...	...
Strip, Hot-Rolled	4.30	4.30	4.30	4.30	...	...	...	...	...
Cold-Rolled	5.30	5.30*	5.30*	5.30	...	...	...	...	...
Shapes Structural	4.30	4.30	...	4.30	...	...	4.30	...	...
Plates	4.55	4.55	4.55	...	4.55	...	...	...	...
Bars, Small Shapes	4.45	4.45	4.45	4.45	....	4.45	...	4.45	4.45

*Nax High Tensile, produced by Great Lakes Steel Corp., quoted 10 cents higher.

WAREHOUSE STEEL PRICES

Prices, cents per pound, for delivery within switching limits, subject to extras.

	SHEETS					STRIP		BARS				PLATES	
	H-R 10G	C-R 10G	C-R 17G	Gal. *10G	Gal. *24G	†H-R	†C-R	H-R Rds. ⅜" to 3"	C-F Rds. ½"& up	H-R Alloy (§4140)	Structural Shapes	Carbon ⅜"-¾"	Floor ⅜" & Thicker
oston (city)	4.90	5.97[4]	5.67[4]	6.10[4]	7.35[4]	4.97	6.71	4.92	5.57	7.17	4.77	5.05	6.72
†New York (city)	4.87	6.07	5.77[8]	6.07	7.32	4.97	....	4.97	5.52	6.97[9]	4.72	5.02	6.70
ew York (country)	4.72	5.92	5.62[8]	5.92	7.17	4.82	....	4.82	....	....	4.57	4.87	6.55
hiladelphia (city)	4.64	6.23[9]	5.83[9]	5.84	7.09	4.73	5.63	4.78	5.48	6.92[9]	4.52	4.79	6.13
hiladelphia (country)	4.54	6.13[9]	5.73[9]	....	....	4.63	5.53	4.68	....	6.82[9]	4.42	4.69	6.03
altimore (city)	4.29†	5.85[8]†	5.55[8]†	5.54	6.79	4.70	....	4.75	5.45	....	4.64	4.74	6.20
altimore (country)	4.19†	5.75[8]†	5.45[8]†	5.35	6.60	4.60	....	4.65	....	....	4.54	4.64	6.10
ashington (city)	4.75	....	....	....	....	4.95	....	5.00	5.60[12]	....	4.90	4.95	6.60
ashington (country)	4.65	....	....	....	....	4.85	....	4.90	....	....	4.80	4.85	6.50
orfolk, Va.	4.75	....	....	....	....	....	....	5.05	5.85	....	5.00	5.00	5.00
emphis, Tenn. (city)	4.82§§	....	5.88	6.37	....	5.02	....	4.97	5.98	....	4.97	5.17	6.88
emphis, Tenn. (country)	4.72§§	....	5.78	6.27	....	4.92	....	4.87	5.88	....	4.87	5.07	6.78
uffalo (city)	4.45	....	5.20[8]	5.90	....	4.60	5.60	4.40	5.10	8.15	4.40	4.85	6.20
uffalo (country)	4.30	....	5.05[8]	5.75	....	4.45	5.45	4.25	4.95	8.00	4.25	4.70	6.05
ttsburgh (city)	4.40§§	....	5.25[8]†	5.65	6.90	4.50	5.50	4.55	5.25	7.05	4.55	4.75	6.10
ttsburgh (country)	4.25§§	....	5.10[8]†	5.50	6.75	4.35	5.35	4.40	5.10	6.90	4.40	4.60	5.95
eveland (city)	4.45	5.50[8]	5.20[8]	5.638	6.888	4.488	5.35	4.40	5.10	6.908	4.611	4.55	6.111
eveland (country)	4.30	5.35[8]	5.05[8]	....	....	....	5.20	4.25	4.95	....	....	4.40	....
ncinnati (city)	4.671	5.516[8]	....	5.716	6.466	4.694	....	4.703	5.353	....	4.744	4.903	6.244
icago (city)	4.45	5.50[8]	5.20[8]	5.65	6.90	4.35	5.35	4.40	5.10	6.65[12]	4.40	4.60	6.05
icago (country)	4.30	5.35[8]	5.05[8]	5.50	6.75	4.20	5.20	4.25	4.95	6.65[12]	4.25	4.45	5.90
lwaukee	4.599	5.649[8]	5.349[8]	5.799	7.049	4.499	5.499	4.549	5.249	6.949[12]	4.549	4.749	6.199
Louis	4.749	5.799[9]	5.499[5]	5.974	7.224	4.649	5.774	4.699	5.424[12]	7.124	4.699	4.899	6.349
rmingham (city)	4.45[20]§§	....	....	5.80	....	4.45[20]	....	4.40[20]	5.93[22]	....	4.40	4.65	6.86
rmingham (country)	4.30[20]§§	....	....	5.50	....	4.30[20]	....	4.25[20]	....	....	4.25	4.50	...
w Orleans	4.98[20]••	....	6.29[18]	....	....	5.18[20]	....	5.13[20]••	6.29[11]	....	5.03[20]••	5.33[20]	7.29[20]
maha, Nebr.	5.068	....	....	6.468	7.718	5.168	....	5.218	5.918	....	5.218	5.418	6.868
attle, Tacoma, Wash.	5.30[17]	....	7.10[5]	6.70	....	5.60[17]	....	5.30[17]	7.45[10]	8.50[12]	5.25[17]	5.45	7.55[17]

se Quantities: 400 to 1999 lb except as noted: Cold-rolled strip, 2000 lb and over, cold finished bars, 1000 lb and over; galvanized sheets, 450 to 99 lb; [1]—any quantity; [2]—300 to 1999 lb; [3]—150 to 2249 lb; [4]—three to 24 bundles; [6]—450 to 1499 lb; [6]—one bundle to 1499 lb; [7]—one to nine ndles; [8]—400 to 1499 lb; [9]—1000 to 1999 lb; [10]—450 to 39,999 lb; [11]—1000 to 39,999 lb; [12]—1000 lb and over; [13]—400 to 14,999 lb; [14]—400 to ,999; [15]—2000 lb and over; [16]—1000 to 4999; [17]—300 to 9999 lb; [18]—1500 to 1999 lb; [19]—1500 to 39,999; [20]—400 to 3999 lb; [21]—400 lb and er; [22]—500 to 1499 lb.

• Includes gage and coating extra, except Birmingham (coating extra excluded); † does not include gage extras; ‡ 15 gage; § as rolled, except Indianapolis, Los Angeles, San Francisco where price represents annealed bars; •• add 0.46 for sizes not rolled in Birmingham; †† same prices quoted for rsey City, N. J.; ‡‡ add 15c for 100 lb for slow moving items; §§ 18 gage and heavier.

PRICES OF LEADING FERROALLOYS PRODUCTS

degeleisen: 19-21% Mn, 1-3% Si, rlot per gross ton, $47, Palmer-n, Pa., $51, Pittsburgh, 16% to % Mn., $46, Palmerton, $50, ttsburgh.

rromanganese, standard: 78-82% gross ton, duty paid, $135 fob rs, Baltimore, Philadelphia or w York, whichever is most favor-le to buyer, Birmingham, Ala. here Sloss-Sheffield Steel & Iron is producer); $140.25 fob cars, ttsburgh, including 75c switching arge, (where Carnegie - Illinois el Corp. is producer); add $8 for cked c.l., $15 for ton, $22 for s ton; $1.70 for each 1%, or action contained manganese over % or under 78%.

rromanganese, low carbon: East-n zone: Special, 21c; regular, 50c; medium, 14.50c; central n e: Special, 21.30c; regular, 80c; medium, 14.80c; western n e: Special, 21.30c; regular, 20c; medium, 15.20c. Prices are r pound contained Mn, bulk carlot pments, fob shipping point, ight allowed. Special low-carbon s content of 90% Mn, 0.10% C, d 0.06% P.

rromanganese Briquets: (Weight prox. 3 lb and containing exactly b Mn). Prices per lb of briquets: ntract, bulk, carlots, 7.00c, cked, carlots, 7.60c, ton lots, 0c, smaller lots 8.40c, eastern, ight allowed; 7.25c, 7.85c, 8.60c d 9.00c, central; 7.80c, 8.40c, 50c and 10.90c, western; spot up 5c; notched, up 0.25c.

rrotungsten: Spot, 10,000 lb or re, per lb contained W, $2.32; ntract, $2.50; freight allowed as west as St. Louis.

rrotitanium: 40-45%, R.R. freight owed, per lb contained Ti; ton s $1.23; smaller lots $1.25; east-n. Spot up 5c per lb.

Ferrotitanium: 20-25%, 0.10 maximum C; per lb contained Ti; ton lots $1.35; smaller lots $1.40 eastern. Spot up 5c per lb.

Ferrotitanium, High - Carbon: 15-20% contract basis, per net ton, fob Niagara Falls, N. Y., freight allowed to destination east of Mississippi river and north of Baltimore and St. Louis, 6.8% C, $142.50; 3-5% C, $157.50.

Ferrovanadium: V 0.35-0.55%, contract basis, per lb contained V, fob producers plant with usual freight allowances; open-hearth grade $2.70; special grade $2.80; highly-special grade $2.90.

Ferromolybdenum: 55-75% per lb, contained Mo, fob Langeloth and Washington, Pa., furnace, any quantity 95.00c.

Ferrophosphorus: 17-19%, based on 18% P content with unitage of $3 for each 1% of P above or below the base; gross tons per carload fob sellers' works, with freight equalized with Rockdale, Tenn.; contract price $58.50, spot $62.25.

Ferrosilicon: Contract, lump, packed; eastern zone quotations: 90-95% c.l. 13.80c, ton lots 14.30c, smaller lots 14.80c; 75%, c.l. 11.05c, ton lots 11.65c, smaller lots 12.25c; 50%, c.l. 9.00c, ton lots 9.65c, smaller lots 10.30c. Deduct 1.00c for bulk, carlots, 80-90% and 90-95%; 1.05c, 75%; 1.20c, 50%. Prices are fob shipping point, freight allowed, per lb of contained Si. Spot prices 0.25c higher on 80-90%, 0.30c on 75%, 0.45c on 50%.

Ferroboron: (B 17.50% max. and C 1.50% max., Al 0.50% max. and C 0.50% max.) Prices per lb of alloy, contract, ton lots $1.20, smaller lots $1.30, eastern, freight allowed; $1.2075 and $1.3075 central; $1.229 and $1.329, western; spot add 5c.

Ferrocolumbium: 50-60%, per lb contained columbium in gross ton lots, contract basis, R. R. freight allowed, eastern zone, $2.50; smaller lots $2.55. Spot up 10c.

Ferrochrome: Contract, lump, packed; **high carbon,** eastern zone, c.l. 16.20c, ton lots 16.80c; central zone, add 0.40c and 1.30c; western zone, add 0.55c and 2.10c. Deduct 0.60c for bulk carlots. **High carbon, high nitrogen,** add 5c to all high carbon ferrochrome prices. Deduct 0.55c for bulk carlots. Spot prices up 0.25c. **Low carbon,** eastern zone, bulk, c.l., max. 0.06% C 23c; 0.1% 22.50c, 0.15% 22.00c, 0.2% 21.75c; 0.5% 21.50c, 1% 21.00c, 2% 20.50c; add 1.35c for 2000 lb to c.l.; central zone, add 0.4c for bulk, c.l.; and 0.65c for 2000 lb to c.l.; western zone, add 0.5c for bulk, c.l., and 1.85c for 2000 lb to c.l.; carlot packed differential 0.80c. Prices are per lb of contained Cr, freight allowed.

Low carbon, high nitrogen: Add 2c to low carbon ferrochrome prices. For higher nitrogen low carbon, add 2c for each 0.25% of nitrogen over 0.75%.

Ferrochrome, Special Foundry: (Cr 62-66%, C above 5-7%.) Contract, 2-inch x D, packed, eastern zone, freight allowed, c.l. 17.05c, ton lots 17.60c, smaller lots 18.30c; central zone, add 0.40c for c.l. and 1.30c for smaller lots; western zone, add 0.55c for c.l. and 2.10c for smaller lots. Deduct 0.60c for bulk carlots.

S. M. Ferrochrome, high carbon: (Cr 60-65%, Si, Mn and C 4-6% each.) Contract, lump, packed, eastern zone, freight allowed, c.l. 17.30c, ton lots 17.90c, smaller lots 18.60c; central zone, add 0.40c for c.l. and 1.30c for smaller lots; western zone, add 0.55c for c.l. and 2.10c for smaller lots. Prices are per pound of contained chromium, spot prices 0.25c higher. Deduct 0.60c for bulk carlots.

S. M. Ferrochrome, low carbon: (Cr 62-66%, Si 4-6%, Mn 4-6% and C 1.25% max.) Contract, carlot, bulk 21.00c; packed carlot 21.80c, ton lots 22.35c, smaller lots 23.35c, eastern, freight allowed, per pound of contained Cr; 21.40c, 22.20c, 23.00c, and 24.00c, central; 21.50c, 22.30c, 24.20c and 25.20c, western spot up 0.25c.

Ferrochrome Briquets: Containing exactly 2 lb Cr, packed eastern zone, c.l. 10.35c, ton lots 10.75c, smaller lots 11.15c; central zone, add 0.25c for c.l. and 0.90c for smaller lots; western zone, add 0.55c for c.l. and 2.10c for smaller lots. Deduct 0.50c for bulk carlots. Prices per pound of briquets, spot prices 0.25c higher; notched 0.25c higher.

Chromium Metal: 97% min. Cr, max, 0.50% C, eastern zone, per lb contained Cr bulk, c.l. 79.50c, 2000 lb c.l. 80c; central 81c and 82.60c; western 82.25c and 84.75c, fob shipping point, freight allowed.

Chromium-Copper: (Cr 8-11%, Cu 88-90%, Fe 1% max., Si 0.50% max.) Contract, any quantity, 45c, eastern, Niagara Falls, N. Y., basis, freight allowed to destination, except to points taking rate in excess of St. Louis rate to which equivalent of St. Louis rate will be allowed; spot up 2c.

Calcium metal; cast: Contract, ton lot or more, $1.60; 100 to 1999 lb, $1.95; less than 100 lb, $3.15 per lb of metal, eastern zone; $1.615, $1.965 and $3.185, western; spot up 5c.

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%), per lb of alloy. Contract, carlots, packed, 16.10c, ton lots 17.60c, smaller lots 18.60c, eastern, freight

allowed; 16.60c, 18.45c, 19.45c, central; 18.65c, 20.20c, 21.20c, western; spot up 0.25c.

Calcium - Silicon: (Ca 30-35%, Si 60-65% and Fe 3.00% max.), per lb of alloy. Contract, lump, packed, carlots 14.60c, ton lots 16.10c, smaller lots 17.10c, eastern, freight allowed; 15.10c, 16.85c, 17.85c, central; 17.15c, 19.00c, 20.00c, western; spot up 0.25c.

Silicon Metal: Min. 97% Si and max. 1% Fe, eastern zone, bulk, c.l. 14.50c; 2000 lb to c.l. 16.00c; central zone, 15.10c and 18.25c; western, 15.70c and 20.00c; min. 96% Si and max. 2% Fe, eastern, bulk, c.l., 14.10c; 2000 lb to c.l. 15.60c; central, 14.70c and 17.85c; western, 15.30c and 19.60c, fob shipping point, freight allowed. Price per lb contained Si.

Silicomanganese Briquets: Containing exactly 2 lb Mn and about ½ lb Si, eastern zone, bulk, c.l. 6.75c, ton lots 7.75c; central zone, add 0.25c for c.l. and 0.60c for ton lots; western, add 0.80c for c.l. and 2.50c for ton lots. Notched, up 0.25c.

Silicon Briquets: Weighing about 5 lb and containing exactly 2 lb Si, packed, eastern zone, c.l. 4.70c, ton lots 5.10c, smaller lots 5.50c; weighing about 2½ lb and containing 1 lb Si, packed, eastern zone, c.l. 4.85c, ton lots 5.25c, smaller lots 5.65c; notched 0.25c higher; central zone, add 0.25c for c.l. and 0.60c for smaller lots; western zone, add 0.45c for c.l. and 0.90c for smaller lots. Prices are fob shipping point, freight allowed; spot prices 0.25c higher. Deduct 0.50c for bulk carlots.

Manganese Metal: (Min. 96% Mn., max. 2% Fe), per lb of metal, eastern zone, bulk, c.l. 30c, 2000 lb to c.l., 32.00c; central 31.00c and 33.45c; western, 31.45c and 34.40c.

Electrolytic Manganese: 99.9% plus, fob Knoxville, Tenn., freight allowed east of Mississippi on 250 lb or more: Carlots 32c, ton lots 34c, drum lots 36c, less than drum lot 38c. Add 1½c for hydrogen-removed metal.

Manganese-Boron: (Mn 75% approx., B 15-20%, Fe 5% max., Si 1.50% max. and C 3% max.) Prices per lb of alloy. Contract, ton lots $1.89, less $2.01, eastern, freight allowed; $1.903 and $2.023, central; $1.935 and $2,055, western; spot up 5c.

Nickel-Boron: (B 15-18%, Al 1% max., Si 1.50% max., C 0.50% max., Fe 3% max., Ni, balance). Prices per lb of alloy: Contract, 5 tons or more $1.90, 1 ton to 5 tons $2.00, smaller lots $2.10, eastern, freight allowed; $1.9125, $2.0125 and $2.1125, central; $1.9445, $2.0445 and $2.1445, western; spot same as contract.

Borosil: 3 to 4% B, 40 to 45% Si; $6.25 per lb contained B, fob Philo, O., freight not exceeding St. Louis rate allowed.

Bortam: B 1.5-1.9%, ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: B 0.90 to 1.15% net ton to carload, 8c per lb, fob Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

Silicaz Alloy: (Si 35-40%, Ca 9-11%, Al 5-7%, Zr 5-7%, Ti 9-11% and B 0.55-0.75%) Prices per lb of alloy, contract, or spot carlots 35.00c, ton lots 37.00c, smaller lots 39.00c, eastern, freight allowed; 35.30c, 38.10c and 40.10c, central; 35.30c, 40.05c and 42.05c, western; spot up 0.25c.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7% and Fe approx. 20%) Price per lb of alloy, contract, carlots 13.50c, ton lots 14.25c, smaller lots 15.00c, eastern zone, freight allowed; 13.80c, 15.35c, 16.10c, central; 13.80c, 17.30c, 18.05c, western; spot up 0.25c.

CMSZ Alloys 4 & 5: (Alloy 4—Cr 45-59%, Mn 4-6%, Si 18-21%, Zr 1.25-1.75%, C 3.00-4.50%; alloy 5—Cr 50-56%, Mn 4-6%, Si 13.50-16.00%, Zr 0.75-1.25%, C 3.50-5.00%). Prices per lb of alloy, contract or spot, bulk, carlots 14.50c; packed, carlots 15.25c, ton lots 16.00c, smaller lots 16.75c, eastern, freight allowed; 14.80c, 15.55c 17.10c, 17.85c, central; 14.80c 15.55c, 19.05c, 19.80c, western.

Zirconium alloy: 12-15%, per lb o alloy, eastern, contract, bulk, car lots 5.50c, packed, carlots 6.05c ton lots 6.40c, smaller lots 6.75c spot up 0.25c.

Zirconium alloy: Z 35-40%, eastern contract, packed, carlots 17.00c, to lots 17.75c, smaller lots 19.00c; spo up 0.25c.

Alsifer: (Approx. 20% Al, 40% Si 40% Fe) Contract basis fob Ni agara Falls, N. Y., lump per l carlots 6.50c; ton lots packed, 7.00c 200 to 1999 lb, 7.75c; smaller lots 8.25c. Spot up ½c.

Simanal: (Approx. 20% each Si Mn, Al) Packed, lump, carload 9c ton lots 9.25c, smaller lots 9.75c pe lb alloy; freight not exceeding St Louis rate allowed.

Tungsten Metal Powder: Spot, no less than 98.8%, $3.05, freight al lowed as far west as St. Louis.

Grainal: Vanadium Grainal No. 1 87.5c; No. 6, 60c; No. 79, 45c; all fob Bridgeville, Pa., usual freight allowance.

Vanadium Pentoxide, technical grade: Fused, approx. 89-92% V_2O_5 and 5.84% Na_2O; or air dried, 83-85% V_2O_5 and 5.15% Na_2O, $1.10 per lb contained V_2O_5 fob plant freight allowed on quantities of 25 lb and over to St. Louis.

Copper Fabricators' Sales Drop Sharply in July

July consumption is smallest since April, 1946 . . . Lead shipments decline but rate is still high

NEW YORK—Major nonferrous metal markets remained quiet at steady price levels last week. However, some price changes developed in minor metals, including silver, platinum and zinc oxide.

COPPER — Consumption of copper dropped to 87,167 tons in July from 104,130 tons in June and 96,763 tons in the like 1946 month according to the Copper Institute. The July total was the smallest monthly consumption since April, 1946, when 86,619 tons were used.

The decline was attributed to closing of most of the brass and wire mills for vacation periods. In addition there was a falling off in business of certain sections of the brass mill industry, particularly in brass rod production. The decline in new bookings was the most disturbing feature of the statistical report, showing that new business booked by users of copper products called for use of only 71,265 tons of refined copper. The latter total is the lowest monthly requirement since the early part of 1946 and a drop of 12,748 tons from the June figure of 84,013 tons.

Unfilled orders on hand at the end of July came to 433,575 tons compared with 449,477 tons at the end of June, a decrease of 15,902 tons.

Fabricators' stocks of refined copper rose to a new high of 441,155 tons, and for the first time in a long while were in excess of unfilled orders. Consumption of copper during the first seven months of the present year amounted to 794,270 tons while new bookings totaled 691,874 tons, resulting in a reduction in fabricators' order backlogs of slightly over 100,000 tons.

June shipments of copper castings amounted to 85 million pounds, a drop of about 5 million pounds from the May total, according to the Bureau of the Census. This was the second successive monthly decline and dropped shipments to their lowest level for the year to date.

Electrolytic copper prices held unchanged on the basis of 21.50c, delivered Connecticut Valley.

LEAD — Production of refined lead in the United States from primary and secondary sources during July increased to 46,012 tons from 45,235 tons in June, according to the American Bureau of Metal Statistics. Primary output rose to 42,536 tons from 41,505 tons in ju. e while secondary production declined to 3476 tons from 3730. Total output for the first seven months amounted to 339,414 tons compared with 273,944 tons in the corresponding period a year ago.

Shipments of refined lead to domestic consumers during July amounted to 52,549 tons compared with 54,627 tons in June, making the total for the first seven months 355,217 tons against 228,190 tons in the like period a year ago.

Stocks of lead at refineries at the end of July totaled 31,290 tons compared with 37,836 tons at the end of June and 66,998 tons at the end of July, 1946.

Shipments of lead die castings rose to 1,079,000 pounds in June, or 12 per cent more than the 966,000 pounds shipped in May, according to the Bureau of the Census.

ZINC — Effective as of Sept. 1, New Jersey Zinc Co. advanced its price of zinc oxide on the lead-free and 5 per cent leaded grades ½-cent a pound; on the 35 per cent and 50 per cent grades, ¼-cent a pound. New prices for zinc oxides in bags for shipments of less than 20 tons and for shipments of 20 tons, all one grade are, respectively, as follows: Lead free, 10.25c and 10.00c; 5 per cent leaded, 10.25c and 10.00c; 35 per cent leaded, 12.00c and 11.75c; 50 per cent leaded, 12.875c and 12.625c. Prices for less than 20-ton shipments are on the basis of fob warehouse or plant, no freight or drayage allowed; for 20 ton shipments, fob shipping point, freight allowed to customer's plant. For delivery in barrels, ¼-cent is added. For Pacific Coast delivery, ½-cent is added. The new prices will remain in effect for at least 90 days, rather than be subject to change without notice as was formerly the case.

Prime western zinc prices held steady at 10.50c, East St. Louis, in a quiet market.

TIN — Malayan tin production goals have been set at 46,150 tons for 1947, 72,800 tons for 1948 and 73,500 tons for 1949. According to a report issued by the Colonial Office Tin Adviser A. D. Storke, tin production is expected to be "well on its way towards reaching its target by the end of 1947," although the 1946 estimate of 12,300 tons fell short by about 4000 tons. The greatest factor which hampered production was delay in mechanical rehabilitation and lack of coal which affected European dredges principally. Thus, dredges fell short of their estimated output during 1946, but gravel pump mines succeeded in producing their quota. Optimism is based on general improvement of conditions, though much remains to be accomplished and many difficulties remain to be overcome.

Straits tin prices held unchanged last week at 80.00c, New York.

SILVER — Price of foreign silver on the New York market advanced to 70.00c an ounce last week. That level represents the highest price silver has sold since June 16, a gain of 10 cents an ounce from the yearly low established on June 26. After a buying lapse, American silverware makers resumed purchasing on Tuesday on an increasingly heavy scale. Supply of silver for spot delivery was inadequate to meet all demands at the previously prevailing levels.

PLATINUM — A leading American refiner of platinum increased his price of the metal $10 an ounce on Wednesday to the basis of $63 an ounce for wholesale dealings; $66 an ounce, retail. Previous price had been in effect since June 23. New quotations are the highest since Apr. 14 when similar prices prevailed. Strength was attributed to increased and seasonal demand from the jewelry trade. Furthermore, offerings of platinum from Russian sources have not been in evidence for some time past.

NONFERROUS METAL PRICES

pper: Electrolytic, carlots 21.50c, delivered nn.; Lake, 21.62½c, del. Conn. Dealers ay add ¾c for 5000 lb to carload; 1c, 1000-99 lb; 1½c, 500-999 lb; 2c, 0-499 lb. Cast-, nom., refinery, 20,000 lb or more; nom., s than 20,000 lb.

ass Ingot: 85-5-5-5 (No. 115) 19.00c; 88-10-2 o. 215) 27.25c; 80-10-10 (No. 305) 23.00c; . 1 yellow (No. 405) 15.25c; carlot prices, cluding 25c per 100 lb freight allowance; add c for less than carloads.

nc: Prime western 10.50c, brass special .75c, intermediate 11.00c, E. St. Louis; high ade 11.50c, del., carlots. For 20,000 lb to rlots add 0.15c; 10,000-20,000 lb 0.25c; 2000-000 lb 0.4c; under 2000 lb 0.50c.

ad: Common 14.80c-14.85c, chemical 14.90c, roding 14.90c, E. St. Louis for carlots.

imary Aluminum: 99% plus, ingots 15.00c ., pigs 14.00c del.; metallurgical 94% min. 50c del. Base 10,000 lb and over; add ½c 0-9999 lb; 1c less through 2000 lb.

condary Aluminum: Piston alloy (No. 122 pe) 14.00-14.50c; No. 12 foundry alloy (No. grade) 13.75c; steel deoxidizing grades, tch bars, granulated or shot: Grade 1 (95-½%) 14.50c; grade 2 (92-95%) 12.75c; ade 3 (90-92%) 12.00-12.25c; grade 4 (85-%) 11.50-11.75c. Above prices for 30,000 lb more; add ¼c 10,000-30,000 lb; ½c 5000-000 lb; ¾c 1000-5000 lb; 1¼c less than 0 lb. Prices include freight at carload rate to 75c per 100 lb.

gnesium: Commercially pure (99.8%) stand-d ingots (4-notch, about 20 lb), 10,000 lb d over, 20.50c; 2000 to 9999 lb, 21.50c; 100 1999 lb, 22.50c. Extruded rounds, 12 inches g, 1.312 inches in diameter, less than 25 lb, 00c-56.00c; 25 to 99 lb, 42.00c-46.00c; 100 4000 lb, 35.00c-36.00c.

: Prices ex-dock, New York in 5-ton lots. d 1 cent for 2240-11,199 lb, 1½c 1000-2239, c 500-999, 3c under 500. Grade A, 99.8% higher (includes Straits), 80.00c; Grade 99.8% or higher, not meeting specifications Grade A, with 0.05% max. arsenic, 79.85c; ade C, 99.65-99.79% incl. 79.55c; Grade D, 50-99.64% incl., 79.40c; Grade E, 99-99.49% d, 78.90c; Grade F, below 99% (for tin con-t), 78.70c.

timony: American bulk carlots fob Laredo, ., 99.0% to 99.8% and 99.8% and over but meeting specifications below, 33.00c; 99.8% d over (arsenic, 0.05% max.; other impuri-s, 0.1% max.) 33.50c, effective as of Mar. On producers' sales add ¼c for less than load to 10,000 lb; ½c for 9999-224 lb; add for 223 lb and less; on sales by dealers, tributors, and jobbers add ½c, 1c, and 3c, pectively.

ckel: Electrolytic cathodes, 99.9%, base es at refinery, unpacked 35.00c lb; 25 lb s produced from electrolytic cathodes 36.50c shot produced from electrolytic cathodes 50c lb; "F" nickel shots or ingots for ad-ons to cast iron 35.50c lb. Prices include port duty.

rcury: Open market, spot, New York, $84-per 76-lb flask.

enic: Prime, white, 99%, carlots, 4.00c lb.

yllium-Copper: 3.75-4.25% Be, $17 per lb tained Be.

dmium: Bars, ingots, pencils, pigs, plates, s, slabs, sticks, and all other "regular" aight or flat forms $1.75 lb. del.; anodes, ls, discs and all other special or patented pes, $1.80.

balt: 97-98%, $1.65 lb for 550 lb (keg); 57 lb for 1000 lb (case); $1.72 lb under 100

ld: U. S. Treasury, $35 per ounce.

ium: 99.9%, $2.25 per troy ounce.

er: Open market, N. Y., 70.00c, per ounce.

tinum: $63-$66 per ounce.

ladium: $24 per troy ounce.

dium: $80-$90 per troy ounce.

Rolled, Drawn, Extruded Products

(Copper and brass products prices based on 21.50c, Conn., for copper. Freight prepaid on 100 lb or more.)

Sheet: Copper 33.68c; yellow brass 29.63c; commercial bronze, 95% 33.72c, 90% 33.11c, red brass, 85% 31.99c, 80% 31.38c; best quality 30.64c; Everdur, Duronze, Herculoy or equiv., cold-drawn, 38.46c; nickel silver, 18%, 42.49c; phosphor bronze, grade A, 5%, 52.00c.

Rods: Copper, hot rolled 30.03c, cold drawn 31.03c; yellow brass, free cutting, 24.39c; commercial bronze, 95% 33.41c, 90% 32.80c; red brass, 85% 31.68c, 80% 31.07c; best quality 30.33c.

Seamless Tubing: Copper 33.72c; yellow brass 32.39c; commercial bronze 90% 35.52c; red brass 85% 34.65c, 80% 34.04c; best quality brass 33.05c.

Wire: Yellow brass 29.92c; commercial bronze, 95% 34.01c, 90% 33.40c; red brass, 85% 32.28c, 80% 31.67c; best quality brass 30.93c.

Copper Wire: Bare, soft, fob eastern mills, carlots 27.72c, less carlots 28.22c; weatherproof, fob eastern mills carlots 28.12c, less carlots 28.62c; magnet, delivered, carlots 29.75c-31.13c, 15,000 lb or more 30.00c-31.38c, less carlots 30.50c-31.88c.

Aluminum Sheets and Circles: 2s and 3s flats, mill finish, base 30,000 lb or more, fob shipping point. Actual transportation charges (not to exceed lowest carload rail freight rate) are deducted on orders for domestic delivery of 500 lb or more of one product to one destination. Widths from 12 in. and diameters from 9 in. to indicated maximum sizes. Prices, cents per lb, effective Jan. 30, 1947.

B. & S. Gage	Max. Width or Diam.	Sheet Base	Circle Base
0.0249"-7	48"	23.70	26.20
8-10	48"	24.20	26.70
11-12	26"	24.70	27.50
13-14	26"	24.90	27.90
15-16	26"	25.10	28.20
17-18	26"	25.40	28.60
19-20	24"	25.70	29.00
21-22	24"	26.10	29.50
23-24	24"	26.60	30.20
25	24"	27.10	30.90
26	24"	27.80	31.90
27	24"	28.50	33.00
28	24"	29.20	33.70
29	24"	30.00	34.70
30	24"	30.80	35.80

Lead Products: Prices to jobbers: Sheets, full rolls, 140 sq ft or more, 18.25c; add per hundredweight, 25c, 80 to 140 sq ft; 50c, 20 to 80 sq. ft; 75c, 10 to 20 sq ft and circles. Pipe: Full coils 17.50c; cut coils 17.75c. Lead Traps and Bends: List plus 42%.

Zinc Products: Sheet, 15.50c, fob mill, 36,000 lb and over. Ribbon zinc in coils, 14.50c, fob mill, 36,000 lb and over. Plates, not over 12-in., 13.50c; over 12-in., 14.50c.

Plating Materials

Chromic Acid: 99.75%, flake, fob Philadelphia, carloads, 21.00c; 5 tons and over 21.50c; 1 to 5 tons, 22.00c; less than 1 ton, 22.50c.

Copper Anodes: Base, 2000 to 5000 lb; fob shipping point, freight allowed: Flat untrimmed, 30.59c; oval, 30.09c; electrodeposited, 29.84c; cast, 29.59c.

Copper Carbonate: 52-54% metallic Cu, 50 lb bags, 26.50c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 45.00c fob Cleveland.

Sodium Cyanide: 96-98%, ½-oz ball, in 100 or 200 lb drums, 1 to 400 lb, 16.00c, 500 lb and over, 15.00c, fob Cleveland; 1 cent less, fob Niagara Falls.

Nickel Anodes: Rolled oval, carbonized, carloads, 48.00c; 10,000 to 30,000 lb, 49.00c; 3000 to 10,000 lb, 50.00c; 500 to 3000 lb, 51.00c; 100 to 500 lb, 53.00c; under 100 lb, 56.00c, add 1 cent for rolled depolarized.

Nickel Chloride: 100-lb kegs, 22.00c; 375-lb bbls, 20.00c.

Tin Anodes: Bar, 1000 lb and over 92.50c; 500 to 1000 lb, 93.00c; 200 to 500 lb, 93.50c; less than 200 lb, 95.00c; ball, 1000 lb and over, 94.75c; 500 to 1000 lb, 95.25c; 200 to 500 lb, 95.75c; less than 200 lb, 97.25c, fob Sewaren, N. J.

Tin Chloride: Fob Grasselli, N. J., 625 lb bbl, price on application.

Sodium Stannate: To all consumers: in 200 or 500 lb drums, 49.50c; 100 lb, 50.50c; 50 lb, 55.00c; 25 lb, 57.50c.
To consumers other than automobile, radio and refrigerator makers: 1500 lb, 45.85c; 600 to 1400 lb, 48.50c.
To automobile, radio and refrigerator makers: 10,000 lb and over, 44.50c; 2000 to 9999 lb. 45.50c; 1000 to 1999, 46.50c; 600 to 999 lb. 48.50c.

Zinc Cyanide: 100-lb drums 36.00c, fob Cleveland; 35.00c, fob Niagara Falls.

Scrap Metal

BRASS MILL ALLOWANCE

(Based on 21.50c, Conn., for copper)

Prices for less than 15,000 lb fob shipping point. Add ⅝c for 15,000-40,000 lb; 1c for 40,000 or more.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	19.125	19.125	18.375
Yellow brass	15.125	14.875	14.250
Commercial Bronze			
95%	18.000	17.750	17.250
90%	17.500	17.250	16.750
Red brass			
85%	17.250	17.000	16.500
80%	16.875	16.625	16.125
Best Quality (71-79%)	16.125	15.875	15.375
Muntz Metal	14.125	13.875	13.375
Nickel silver, 5%	16.125	15.875	8.063
Phos. bronze, A, B	20.000	19.750	18.750
Naval brass	14.500	14.250	13.750
Manganese bronze	14.500	14.250	13.625

BRASS INGOT MAKERS BUYING PRICES

(Cents per pound, fob shipping point, carload lots)

No. 1 copper 17.50, No. 2 copper 16.50, light copper 15.50, composition red brass 13.50-14.00, auto radiators 10.25, heavy yellow brass 9.50-10.00, brass pipe 10.00-10.50.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 18.25-18.50, No. 2 copper, 17.25-17.50, light copper, 16.25-16.50, refinery brass (60% copper), per dry copper content less $5 smelting charge for brass analyzing 60 per cent or more, 14.00.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots or more)

Copper and Brass: Heavy copper and wire No. 1 16.00-16.50, No. 2 15.00, light copper 14.00; No. 1 composition red brass 12.00-12.25, No. 1 composition turnings 11.50-11.75, mixed brass turnings 7.00, new brass clippings 12.00-12.50, No. 1 brass rod turnings 10.50-11.00, light brass 6.00, heavy yellow brass 7.00, new brass rod ends 11.00-11.50, auto radiators, unsweated 9.00c, cocks and faucets 9.00-9.50, brass pipe 9.00.

Lead: Heavy 11.50-12.00, battery plates 7.00, linotype and stereotype 12.25-12.50, electrotype 10.75-11.00, mixed babbitt 12.00, solder joints 15.50-16.00.

Zinc: Old zinc 5.00-5.50, new die cast scrap 3.75-4.00, old die cast scrap 3.00.

Tin: No. 1 pewter 50.00-52.00, block tin pipe 67.00-68.00, auto babbitt 40.00-42.00, No. 1 babbitt 40.00-43.00, siphon tops 40.00-42.00.

Aluminum: Clippings, 2S, 7.50-8.00, old sheets 6.00, crankcases 6.00, borings and turnings 2.00, pistons, free of struts, 5.00.

Nickel: Anodes 18.50-19.00, turnings 15.50-16.50, rod ends 18.00-19.00.

Monel: Clippings 13.00-14.00, turnings 7.50-8.00, old sheet 11.00-12.00, rods 11.50-12.50, castings 9.00.

OPEN MARKET PRICES, IRON AND STEEL SCRAP

Prices are dollars per gross ton, including broker's commission, delivered at consumer's plant except where noted.

PITTSBURGH

No. 1 Heavy Melt. Steel	$38.00
No. 2 Heavy Melt. Steel	38.00
No. 1 Busheling	38.00
Nos. 1, 2 and 3 Bundles	38.00
Machine Shop Turnings	32.50-33.00
Mixed Borings, Turnings	32.50-33.00
Short Shovel Turnings.	33.50-34.00
Cast Iron Borings	33.00-33.50
Bar Crops and Plate	45.50-46.50
Low Phos. Steel	45.50-46.50
Punchings & Plate Scrap	46.50-47.50
Cut Structurals	44.50-45.50
Elec. Furnace Bundles.	43.50-44.50
Heavy Turnings	36.50-37.50

Cast Iron Grades

No. 1 Cupola	43.00-43.50
Charging Box Cast	40.50-41.50
Heavy Breakable Cast.	36.50-37.50
Stove Plate	34.50-35.50
Unstripped Motor Blocks	38.00-39.00
Malleable	49.50-50.50
Brake Shoes	35.00-36.00
Clean Auto Cast	40.00-41.00
No. 1 Wheels	42.00-42.50
Burnt Cast	32.00-33.00

Railroad Scrap*

No. 1 R.R. Heavy Melt.	42.00-42.50
R.R. Malleable	50.00-51.00
Axles	42.00-43.00
Rails, Rerolling	43.00-44.00
Rails, Random Lengths	41.00-41.50
Rails, 3 ft and under	46.00-47.00
Rails, 18 in. and under	46.00-47.00
Railroad specialties	47.50-48.00
Uncut Tires	46.00-46.50
Angles, Splice Bars	45.00-46.00

*Brokers buying prices.

CLEVELAND

No. 1 Heavy Melt. Steel	$38.00-38.50
No. 2 Heavy Melt. Steel	38.00-38.50
No. 1 Busheling	38.00-38.50
Nos. 1 & 2 Bundles	38.00-38.50
Machine Shop Turnings	31.00-31.50
Mixed Borings, Turnings	31.50-32.00
Short Shovel Turnings.	32.00-32.50
Cast Iron Borings	32.00-32.50
Bar Crops and Plate	42.00-42.50
Cast Steel	46.00-47.00
Punchings & Plate Scrap	42.00-42.50
Heavy Turnings	37.00-37.50
Alloy Free Turnings	33.00-33.50
Cut Structurals	42.00-42.50

Cast Iron Grades

No. 1 Cupola	45.00-46.00
Charging Box Cast	42.00-43.00
Stove Plate	42.00-43.00
Heavy Breakable Cast.	40.00-41.00
Unstripped Motor Blocks	41.00-42.00
Malleable	56.00-57.00
Brake Shoes	42.00
Clean Auto Cast	48.00
No. 1 Wheels	45.00
Burnt Cast	42.00-43.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	41.50-42.00
R.R. Malleable	56.00-57.00
Rails, Rerolling	45.00
Rails, Random Lengths	45.00
Rails, 3 ft and under	49.00
Railroad Specialties	50.00
Uncut Tires	46.00
Angles, Splice Bars	49.00

VALLEY

No. 1 Heavy Melt. Steel	$38.00-40.00
No. 2 Heavy Melt. Steel	38.00-40.00
No. 1 Bundles	38.00-40.00
Machine Shop Turnings	34.00-35.00
Short Shovel Turnings.	34.00-35.00
Cast Iron Borings	34.00-35.00
Low Phos.	44.00-45.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	42.00-43.00

MANSFIELD

No. 1 Heavy Melt. Steel	$40.00
Machine Shop Turnings	35.00
Short Shovel Turnings.	36.00-37.00

CINCINNATI

No. 1 Heavy Melt. Steel	$36.00
No. 2 Heavy Melt. Steel	36.00
No. 1 Busheling	36.00
No. 1 Bundles	36.00
No. 2 Bundles	36.00
Machine Shop Turnings	30.00
Mixed Borings, Turnings	29.00
Short Shovel Turnings.	32.00
Cast Iron Borings	31.00

Cast Iron Grades

No. 1 Cupola Cast	47.00
Charging Box Cast	41.00
Heavy Breakable Cast.	40.00
Stove Plate	38.00
Unstripped Motor Blocks	38.00
Brake Shoes	35.00
Clean Auto Cast	46.00
Drop Broken Cast	50.00

Railroad Scrap

No. 1 R.R. Heavy Melt	42.00
R.R. Malleable	56.00
Rails, Rerolling	45.00
Rails, Random Lengths	45.00
Rails, 18 in. and under	50.00

DETROIT

(Dealers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$34.50-35.00
No. 1 Busheling	34.50-35.00
Nos. 1 & 2 Bundles	34.50-35.00
No. 3 Bundles	34.50-35.00
Machine Shop Turnings	27.50-28.00
Mixed Borings, Turnings	27.50-28.00
Short Shovel Turnings.	28.50-29.00
Cast Iron Borings	28.50-29.00
Punchings & Plate Scrap	39.00-39.50

Cast Iron Grades

No. 1 Cupola Cast	39.00-40.00
Heavy Breakable Cast.	33.00-34.00
Clean Auto Cast	39.00-40.00

BUFFALO

No. 1 Heavy Melt. Steel	$38.50-39.50
No. 2 Heavy Melt. Steel	38.50-39.50
No. 1 Busheling	38.50-39.50
No. 1 & 2 Bundles	38.50-39.50
Machine Shop Turnings	29.50-30.50
Mixed Borings, Turnings	29.50-30.50
Cast Iron Borings	29.50-30.50
Short Shovel Turnings.	31.50-32.50
Low phos.	41.00-42.00
Elec. Furnace Bundles.	40.00-41.00

Cast Iron Grades

No. 1 Cupola Cast	40.00-42.00
Heavy Breakable Cast.	38.00-40.00
Malleable	50.00-52.00
No. 1 Wheels	42.00-43.00

Railroad Scrap

Rails, 2 ft and under	45.00-47.00
Railroad Specialties	45.00-46.00

PHILADELPHIA

No. 1 Heavy Melt. Steel	$36.50-37.00
No. 2 Heavy Melt. Steel	36.50-37.00
No. 1 Busheling	36.50-37.00
No. 1 Bundles	36.50-37.00
No. 2 Bundles	36.50-37.00
No. 3 Bundles	34.50-35.00
Machine Shop Turnings	28.50-29.50
Mixed Borings, Turnings	28.50-29.50
Short Shovel Turnings.	29.50-30.00
Bar Crops and Plate	40.00-41.00
Punchings & Plate Scrap	40.00-41.00
Cut Structurals	39.00-39.50
Elec. Furnace Bundles.	39.00-40.00
Heavy Turnings	38.00-39.00
No. 1 Chemical Borings	34.50-35.50

Cast Iron Grades

No. 1 Cupola Cast	45.00-46.00
Charging Box Cast	43.00-44.00
Heavy Breakable Cast.	43.00-44.00
Unstripped Motor Blocks	40.00-41.00
Malleable	58.00-60.00
Clean Auto Cast	45.00-46.00
No. 1 Wheels	46.50-47.50

NEW YORK

(Dealers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$32.00
No. 2 Heavy Melt. Steel	32.00
No. 1 Busheling	32.00
Nos. 1 & 2 Bundles	32.00
No. 3 Bundles	31.00
Machine Shop Turnings	24.00-25.00
Mixed Borings, Turnings	24.00-25.00
Short Shovel Turnings.	26.00-27.00
Punchings & Plate Scrap	34.00-35.00
Cut Structurals	34.00-35.00
Elec. Furnace Bundles.	33.00
No. 1 Chemical Borings	24.50-25.00

Cast Iron Grades

No. 1 Cupola Cast	36.00-37.00
Charging Box Cast	36.00-37.00
Heavy Breakable	36.00-37.00
Unstripped Motor Blocks	34.00
Malleable	52.00-54.00

BOSTON

(Fob shipping point)

No. 1 Heavy Melt. Steel	$30.00-31.00
No. 2 Heavy Melt. Steel	30.00-31.00
Nos. 1 & 2 Bundles	30.00-31.00
No. 1 Busheling	30.00-31.00
Machine Shop Turnings	22.00-23.00
Mixed Borings, Turnings	23.00-24.00
Short Shovel Turnings.	24.00-25.00
Bar Crops and Plate	32.00-33.00
Punchings & Plate Scrap	32.00-33.00
Chemical Borings	24.00-25.00

Cast Iron Grades

No. 1 Cupola Cast	42.00-44.00
Charging Box Cast	38.00
Heavy Breakable Cast.	38.00-39.00
Stove Plate	35.00-36.00
Unstripped Motor Blocks	32.00-34.00
Clean Auto Cast	40.00-42.00

CHICAGO

No. 1 Heavy Melt. Steel	$38.50-39.00
No. 2 Heavy Melt. Steel	38.50-39.00
No. 1 & 2 Bundles	38.50-39.00
No. 3 Bundles	36.50-37.00
Machine Shop Turnings	33.50-34.00
Mixed Borings, Turnings	33.50-34.00
Short Shovel Turnings.	35.50-36.00
Cast Iron Borings	34.50-35.00
Bar Crops and Plate	41.00-41.50
Cast Steel	41.00-41.50
Punchings	41.00-41.50
Elec. Furnace Bundles.	39.50-40.00
Heavy Turnings	38.00-38.50
Cut Structurals	41.50-42.00

Cast Iron Grades

No. 1 Cupola Cast	42.00-45.00
Malleable	42.00-45.00
Clean Auto Cast	42.00-45.00
No. 1 Wheels	42.00-45.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.00-40.50
Rails, Rerolling	46.00-46.50
Rails, Random Lengths	41.50-42.00
Rails, 3 ft. and under.	44.00-44.50
Rails, 18 in. and under	44.50-45.00
Railroad Specialties	43.00-43.50
Angles, Splice Bars	43.00-43.50

ST. LOUIS

No. 1 Heavy Melt. Steel	$39.50-40.50
No. 2 Heavy Melt. Steel	38.50-39.50
Machine Shop Turnings	32.00-33.00
Short Shovel Turnings.	34.00-35.00

Cast Iron Grades (Fob shipping point)

No. 1 Cupola Cast	40.00-41.00
Charging Box Cast	37.00-38.00
Heavy Breakable Cast.	35.00-36.00
Brake Shoes	37.00-38.00
Clean Auto Cast	41.00-42.00
Burnt Cast	35.00-37.00

Railroad Scrap

R.R. Malleable	54.00-55.00
Rails, Rerolling	45.00-46.00
Rails, Random Lengths	42.00-43.00
Rails, 3 ft and under	45.00-46.00
Uncut Tires	43.50-44.50
Angles, Splice Bars	40.00-41.00

BIRMINGHAM

No. 1 Heavy Melt. Steel	$34.00-35.00
No. 2 Heavy Melt. Steel	34.00-35.00
No. 1 Busheling	34.00-35.00
Nos. 1 & 2 Bundles	34.00-35.00
No. 3 Bundles	31.00
Long Turnings	24.50
Short Shovel Turnings.	26.00-27.00
Cast Iron Borings	25.00
Bar Crops and Plate	38.50
Cut Structurals	38.50

Cast Iron Grades

No. 1 Cupola Cast	41.00
Stove Plate	39.00
No. 1 Wheels	36.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	37.00
R.R. Malleable	42.50
Axles, Steel	39.00
Rails, Rerolling	41.00
Rails, Random Length.	39.00
Rails, 3 ft and under	41.00
Angles and Splice Bars.	41.00

SAN FRANCISCO

No. 1 Heavy Melt. Steel	*$22.00
No. 2 Heavy Melt. Steel	*22.00
No. 1 Busheling	*22.00
Nos. 1 & 2 Bundles	*22.00
No. 3 Bundles	*17.00
Machine Shop Turnings	*12.50
Bar Crops and Plate	22.00
Cast Steel	22.00
Alloy Free Turnings	12.50
Cut Structurals	22.00
Tin Can Bundles	17.00

Railroad Scrap

Axles	29.00
Rails, Random Lengths	23.50
Uncut Tires	30.50

*Fob California shipping point.

SEATTLE

No. 1 Heavy Melt. Steel	$22.00
No. 2 Heavy Melt. Steel	22.00
No. 1 Busheling	22.00
Nos. 1 & 2 Bundles	22.00
No. 3 Bundles	20.00
Machine Shop Turnings	13.50
Mixed Borings, Turnings	13.50
Punchings & Plate Scrap	23.50
Cut Structurals	23.50

Cast Iron Grades

No. 1 Cupola Cast	27.50
Charging Box Cast	22.50
Heavy Breakable Cast.	21.50
Stove Plate	23.00
Unstripped Motor Blocks	21.50
Malleable	27.50
Brake Shoes	27.50
Clean Auto Cast	27.50
No. 1 Wheels	24.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	20.00
Railroad Malleable	27.50
Rails, Random Lengths	20.00
Angles and Splice Bars	21.50

LOS ANGELES

No. 1 Heavy Melt. Steel	$22.50
No. 2 Heavy Melt. Steel	22.50
Nos. 1 & 2 Bundles	22.50
Machine Shop Turnings	16.00
Mixed Borings, Turnings	15.50-16.00
Punchings & Plate Scrap	28.00
Elec. Furnace Bundles.	28.00

Cast Iron Grades

No. 1 Cupola Cast	35.00-36.00

Sheets, Strip . . .

Several sellers curtail fourth quarter allotments due to heavy backlogs

Sheet Prices, Page 282

New York—Except for some specialties, sheet consumers in general will witness little relief in tonnage over the remainder of the year. A number of sellers have curtailed fourth quarter allotments and while shipments should be as heavy, if not heavier, than during the current three months, a substantial portion in many cases will be against old orders. One large independent seller in this district is about 45 days behind on present commitments and, as an effort is being made to bring order books into balance by the end of this year, his allotments for fourth quarter will be about 50 per cent under the present quotas.

However, there are indications that the mills are getting fairly well caught up on housing work, with a result that there should be at least less pressure in that direction. In fact, it is reported that there will be no special allocations, voluntary or otherwise, for housing work in the last quarter. Also, opinion in some quarters is that there may be a tapering off in shipments of sheets to car builders. The particular difficulty in car shops, it appears, is not only a lack of balance in their steel stocks but in some other materials as well. Either car construction will be stepped up quite substantially over the closing months of the year or there will be an easing in pressure for some grades of steel, including sheets.

The situation in galvanized sheets has never been tighter. Various consumers, particularly those who in the prewar years relied largely on certain midwestern mills and who have since been withdrawing from the eastern markets because of heavy demands nearer at home from consumers with smaller freight rates, or those who have been relying on jobbers who in turn have been looking to these mills for the major source of their supply, find themselves without any supply whatsoever, except blackmarket sources. This is particularly true with respect to the lighter gages, 18, 20 and 22 gages. Blackmarket prices recently have averaged around 15 cents a pound, with the trend upward and as high as 18 cents being quoted in some instances. Needless to say, this is retarding seriously the operations at many plants.

Stainless steel demand is showing some improvement. This is accounted for in part by a stepping up in production in kitchen ware and household appliances for the holiday season. Until recently there has been almost a glut of supply in some of those items, but stocks are now being worked off. Also, with building restrictions virtually lifted by the government, there is more activity in stainless steel for structural trim and for fountains and general restaurant installations. Demand for electrical sheet is less pressing, although there are still requirements for all that can be produced, with sellers booked substantially ahead.

Boston — Fourth quarter flat-rolled supply situation will continue critical with many consumers, since allocations will be small in many cases. Serious efforts are being made by producers to wipe out carryovers and delinquent tonnage with hope of bringing schedules current with the start of the new year. With demand far in excess of previous levels whether this can be done is questionable. Requirements are likely to be heavier the last quarter with users seeking to boost production after summer letdowns. Galvanized sheets are the shortest item and only stainless is available in desired quantities. Producers of narrow cold-rolled strip are making progress on backlogs with shipments in excess of new bookings and some have openings for December.

Pittsburgh — Relatively little sheet and strip tonnage has been lost due to extremely hot weather, an encouraging factor to many customers whose inventories continue unbalanced and well below normal. Sellers report constant pressure for prompt delivery from customers reportedly soon to be forced to curtail operations due to inadequate steel supply. Hold-up of delivery or cancellation of orders is said to be practically nonexistent, and there are no signs of easing in demand from any consumer source through remainder of this year. So far there has been no exceptional difficulty arising out of dual pricing on some sheet items, with customers more concerned about getting delivery than with price in today's market. Producers are hopeful installation of new cold-reduction mills over the next six months will ease tight supply situation, although some contend that demand will continue to far exceed production well through 1948.

Philadelphia — Stringency in galvanized and enameling sheets has seldom, if ever, been more pronounced. This situation is ascribed in part to the large freight rates which must be absorbed by midwestern producers who are confronted at this time with ample demand at consuming centers nearer their own mills.

Chicago — Although production of sheets and strip are being maintained at maximum of semifinished steel allocated to these products, demand exceeds shipments by a wide margin. This situation is expected to continue through balance of the year and it is a foregone conclusion that yearend carryover will be substantial. Mills in this district do not plan to cut back fourth quarter quotas to minimize the carryover; rather they plan to adjust first quarter quotas to put order books in better current condition. One producer plans to allocate to sheet production any steel tonnage not fully taken up by other products. Another mill, however, has its sheetmaking capacity fully engaged, the excess over its own steel availability being devoted to conversion of steel shipped in by consumers.

Cincinnati—District sheet mills, despite uninterrupted high production, have been unable to eliminate all prospective carryovers. With one month to go in the third quarter, it now appears carryover will be similar to that which mills had at the opening of the second quarter. One effect will be inability to expand consumer quotas at least until next year.

Tubular Goods . . .

Tubular Goods Prices, Page 283

New York—Most pipe producers have set up quotas on merchant pipe for fourth quarter on a somewhat smaller scale than for the current period. Shipments should be as heavy as ever, if not heavier, but most producers are behind on commitments and are making every effort to get reasonably caught up by the end of this year if they can. Hence the smaller allocations of new tonnage for shipment over the final three months of the year. On line pipe and certain types of tubing, deliveries are far more extended, producers having long since accepted orders for deliveries beyond this year, whereas in the case of merchant pipe they have confined orders to a limited delivery basis of not more than three months. Producers see no general easing in the situation for some time to come, especially if building construction takes a spurt early next year as many believe likely.

Seattle—Seasonal quiet is evident in the tubular goods market. Interrupted water transportation is causing some anxiety as deliveries of long-delayed cast iron mill shipments are uncertain.

Steel Bars . . .

Carnegie-Illinois revises selling policy on shipments into Michigan

Bar Prices, Page 282

Pittsburgh — Carnegie-Illinois Steel Corp. has revised its selling policy to meet the arbitrary prices on carbon bars at Detroit and Eastern Michigan for only the size range produced, as follows: Rounds, squares and round cornered squares, up to 3½-in. inclusive; hexagons up to 1¾-in.; and all standard sizes of flats. For sizes outside the above ranges and all other bar items, the nearest basing point now applies within range of sizes produced, thereby restricting the basing point set-up on bars accordingly.

Distribution of bessemer screw stock also has been restricted to Pittsburgh, Youngstown, Chicago and Gary basing points, within size ranges produced at the various points. Thus, Buffalo and Birmingham no longer are recognized as bases for bessmer bar stock.

No change in selling practice in regard to distribution has been instituted on alloy bar items, although cold-finishers are considering similar action where it applies. Carnegie also has discontinued selling rerolling and forging quality semifinished steel items at the Detroit and Eastern Michigan arbitrary prices.

Extremely hot weather has adversely affected bar production and it is probable that some adjustment in scheduling output will be necessary next quarter. Sellers are booked through the year within the smaller size ranges, while openings in production schedules late next quarter are available for the larger sizes. Relatively quick delivery of 4 to 5 weeks can be made on alloys. Cold-finished bar demand remains active, notably in smaller size ranges. Customers' inventories for all bar items are in somewhat better balance, although there remains an acute shortage for sizes under 2-inch.

Boston—Supply of cold-finished carbon bars has improved to the point some users have slackened buying; this applies even to small sizes and now only flats are in limited supply. There is less easing in hot-rolled with mills booked through balance of year. Fourth quarter quotas are generally at current levels. More bar tonnage is coming into New England on a Youngstown base, including cold-finished bessemer, most bar shapes and rounds and squares over 4 inches. Forge shops producing for the

utomotive industry are active, but some hops forging small tools have about lled supply pipe lines.

New York—The hot-rolled bar situtions is just about holding its own. roadly speaking, fourth quarter quotas re about on a parity with the present uarter set-up and except in the very mall sizes most producers are getting irly well caught up on commitments. t least some declare they will not go nto fourth quarter with any heavier rrearages than when they entered the urrent quarter. Some producers claim nat there is better demand for the rger sizes than there was a while back, lthough the improvement has not been fficient to make any great difference the general picture. Producers are ontinuing to confine future orders to his year only; cold-drawn bar sellers, owever, are accepting orders for shipent beyond and, in fact, still have pace for further business for shipment the last quarter of 1947. Alloy schedles are easing, on both hot and cold rades, with promises ranging four to x weeks.

Philadelphia — Most hot-rolled bar ellers appear to be at least maintaining eir delivery positions, if not actually nproving upon them in some sizes. Large ounds are in somewhat better demand. ue mainly to the expanding railroad r building program, but in general proucers have set up quotas for the fourth uarter that are fully as large as for e current quarter. Some sellers look r a little easing in supply before the nal quarter gets under way, a possiility attributed in part to a softening demand for cold-finished bars. Most old-finished bar sellers still have tonage available for shipment over the reainder of this year and, in an effort to olster backlogs, will accept tonnage for hipment in 1948. Deliveries on hot nd cold-finished alloy bars remain at round four to six weeks.

Detroit — A new policy on pricing apears to have been instituted by various utside mills supplying this area, involvg the cancellation of the "Detroit artrary" or 15-cent per 100 pounds witching" charge on all classifications bars not rolled by local mills, and the evision of such prices to the regular asing-point quotation. Principal effect us far has been on bessemer screw ock, although some larger sizes of carbon steel bars, rerolling and forging bilts also are involved.

Seattle — Rolling mill operations owed a drop last week as Northwest teel Rolling Mills rolling mill was down ue to a shortage of ingots while the lectric furnace underwent repairs. Capaty production is expected next week. Iills have substantial backlogs which re not being greatly reduced as the olume of small tonnages taken about quals production.

Increased prices have not lessened the emand for either reinforcing or merhant bars.

Tin Plate . . .

Tin Plate Prices, Page 283

Pittsburgh—Some tin plate producers ave been unable to meet projected prouction allotments in recent weeks with esult that carryover tonnage has been ightly increased. There is fair prospect his tonnage will be nearly cleared up ext quarter, however, with the passg of present seasonal peak pressure for eliveries. No important adjustment in

trend in specifications has developed recently. Electrolytic tin plate demand for general line can use continues to far exceed present output and is expected to more than offset the slight decline in hot-dip requirements indicated later this year. Tin plate contract prices for 1948 will be announced late next quarter, and are expected to be increased to reflect the sharp increase in pig tin costs since 1947 prices were established. Pig tin has risen 15 cents per base box on coke plate and an average 5 cents on electrolytic in the interim. There also remains the possibility of a further advance in pig tin. Tin plate producers are pressing for delivery of as much tonnage as possible before the anticipated higher prices become effective. In this respect it is pointed out that can companies' inventories are well below normal.

Chicago—Although production of tin plate is being maintained at near capacity, demand is outrunning output. Because of adverse weather conditions in midwestern areas, the food pack this late summer and fall will not come up to expectations. However, general demand for tin plate is such that any falling off in requirements for food packing will be quickly absorbed. Box car supply, although uncomfortably short, is not preventing tin plate makers from keeping their production shipped to customers.

Plates . . .

Plate Prices, Page 283

Philadelphia — Plate sellers have little new tonnage to offer for shipment over the remainder of this year. Those selling on a quarterly basis have already set up quotas for the final three-month period and other sellers are equally well scheduled. Some producers admit that they are over-scheduled and will have to work off quite a little 1947 business in the first quarter of next year. At the same time, some producers who are restricting their acceptance of new orders have been able to reduce their arrearages. One district mill, although this is exceptional, will have a carryover of only a week to ten days' production at the end of this quarter. The situation is being eased somewhat in this respect by recent cancellations on the part of mills themselves of export tonnage where serious question has developed as to the ability of purchasers to obtain individual licenses. Meanwhile, considerable new export demand is pending, with one recent inquiry involving 50,000 tons of shipt plates.

New York — While plate fabricators are not pressing quite as hard as they did for mill shipments, they are still not in a comfortable supply position, especially with respect to light gages, ¼-inch and under. In fact, some fabricators believe that the worst is over insofar as their supply situation is concerned. Meanwhile, mills are still behind on current commitments, although one eastern producer doubts if he will have a carryover at the end of this quarter of more than a week to ten days. This improved situation is attributed to a highly selective policy with respect to new orders, rather than to any material falling off in demand. Most producers will enter the final quarter with arrearages of three to five weeks.

Boston—Decline in export demand and lower shipments to carbuilding shops by mid-fourth quarter may contribute toward better distribution of plates, both carbon and high-strength, low-alloy. Tightening of export regulations is ex

ected, and deliveries to car shops have een heavier than consumption for some ime. Indications are shipments to the atter may be revised by October. Tank hops are worse off for plate than most ther fabricators, although all classes f consumers, with the exception of ship uilders, are clamoring for more ton- age, notably warehouses. Weldment hops are again pressing for deliveries, lthough several weeks ago heavy re- eipts temporarily brought inventories in- o balance. These shops have large order acklogs and, operating at capacity, re consuming more tonnage than in the rewar period.

Seattle — Plates continue scarce, but lants in this area report near capacity perations with steady demand for tanks nd pipe projects. Mill allocations are well below requirements and inventories re so low that management is careful n making commitments for jobs involv- ng sizable tonnages. No important pro- ects are up for immediate attention.

Wire . . .

Wire Prices, Page 283

Boston—Wire mills' order backlogs nd deliveries are spotty. Some prod- cts, including music wire, rope wire nd razor blade steel, are easy with eliveries normal. On the other hand, umerous high carbon specialties and alvanized products are booked through his year with carryovers extend- ng into next year. Lack of balance in emifinished inventories is a major finish- ng problem. Screw manufacturers are ressing for more tonnage, but inven- ories are out of balance, some sizes and rades being in ample supply while thers are short. Several producers ormerly selling both rods and drawn ire have withdrawn, leaving gaps in upply which have not been filled. There as been some slackening in demand, otably in Connecticut, not only for wire ut for other steel products. The Nauga- uck Valley area is not producing at ca- acity.

Chicago—Most acute tightness in wire nd wire products is to be found in the nerchant items. Requirements continue igh and jobbers' inventories are low. Principal shortages are in building nails nd bale ties and baling wire, the sea- onal demand for the latter exceeding urrent production. Hot, humid weather as slowed down fence construction, but as not interrupted pressure for deliver- es of heavier gage fencing and barbed ire.

Pittsburgh—Acute shortage of wire ods continues to restrict output of non- ntegrated interests, notably in the East, nd no significant easing in this situation s indicated through remainder of this ear. There also is no sign of any easing n the very tight supply situation for nanufacturers wire, and jobbers' inven- ories of nearly all merchant wire items ontinue unbalanced and well below ormal. Some producers report a slightly ower production schedule on nails, re- lecting failure of the federal housing rogram to reach projected unit con- truction. It is now estimated that month- y output of nails ranges between 60,000 nd 65,000 tons, in contrast to 70,000- on monthly rate earlier this year. Wire ope demand is below that recorded last pring, but is well sustained. Most sell- rs are scheduled through remainder of his year on most wire items, and in ome instances the carryover tonnage vill be substantial.

Structural Shapes . . .

Structural Shape Prices, Page 283

New York—Structural steel bookings for July, according to the American Institute of Steel Construction Inc., this city, amounted to 150,260 tons, an increase of 45.5 per cent over the preceding month. Bookings for the first seven months amounted to 908,213 tons, a gain of 7.7 per cent over the 843,752 tons booked in the same months in the averaged five prewar years, 1936-1940.

July shipments, reported at 156,102 tons, increased 22.5 per cent over the same month in the five prewar years, while shipments for the seven months were 29.3 per cent greater than the average for the same months in the five pre-war years.

Tonnage available for fabrication as of July 31 was 660,919 tons.

Revisions were announced for April, May and June in tonnage closed and also shipments made. In April, 161,338 tons of work were placed, according to revision; in May, 112,954 tons; and in June, 103,273 tons. Revised shipments were: 157,392 for April; 154,980 for May; and 151,882 for June.

Boston—New inquiry for fabricated structural steel is at a low level and is expected to remain light during the balance of this year. There is, however, only a slight easing in the supply of plain material. One mill is distributing slightly heavier tonnages, but fabricators and warehouses continue to ask for more tonnage. While district shop backlogs are not as extended as those for most of the larger units, allocations are barely sufficient for current operations, especially as some are apparently over-committed, based on quotas. They now have to shop around to round out wanted sizes and shapes.

Philadelphia — Demand for structural shapes is light here with inquiries including 300 tons for the Chester county dam painter gates at Oxford, Pa., on which the Arundel Corp., Baltimore, the general contractor, is low and 170 tons for a plant addition for the Kind & Knox Gelatin Co., Camden, N. J. Scattered orders include 100 tons for a plant addition for the Heyden Chemical Corp., Princeton, N. J., placed with Keystone Structural Steel Co., Trenton, N. J.

Most shape producers are in better position with respect to arrearages than at the beginning of this quarter. In fact, one large interest is fairly well caught up, with quotas for the fourth quarter on a slightly larger basis than for the present period. However, the situation in general is still far from easy, especially in the light sizes.

Seattle—Fabricators are busy on current contracts and are showing little interest in new business because of the lack of materials. For this reason, small jobs are preferred to larger projects since mills will not guarantee coverage on the latter. Buyers are pushing shops for quick deliveries which are difficult to obtain in the circumstances.

Warehouse . . .

Warehouse Prices, Page 285

Chicago—Warehouses report demand for most steel products, is greater than their receipts from mills. As a result, great difficulty is experienced in maintenance of inventories. Pressure is greatest for sheets, strip, small carbon bars, smaller bar shapes, and certain wire products. Large sizes of carbon bars, cold-finished bars, stainless steel, and alloys in general are in more comfortable position.

Pittsburgh—Distributors continue under heavy pressure for deliveries and there seems to be no indication of any easing in demand through the remainder of this year. Warehouse stocks remain unbalanced, with inventories of light structural angles, channels, wide flange beams, hot and cold-rolled sheets, and small sized bars nearly depleted. Mill deliveries fail to show significant improvement although some warehouse interests have been promised current mill order delivery by the close of this quarter.

Philadelphia — Jobbers report little change in business here for the month just ended. In fact, demand for several products, notably sheets, plates and small shapes, continues well in excess of the warehouses' ability to supply. Hot-rolled carbon bar buying is well sustained, although demand for cold-finished bars is appreciably smaller.

Cincinnati—Sales from warehouses declined moderately during August because of unbalanced inventories, partially caused by conditions in July when sales volume was maintained in spite of poor mill shipments at the expense of jobbers' stocks. Price adjustments, an echo of recent mill announcements, have been generally established, with demand in sheets, structurals, plates, and small bars unsatiated.

Los Angeles — Credit and all the ramifications of the bills receivable department of accounting constitute the chief topic of conversation when Southern California steel jobbers get together. Causes of concern over credit in some cases is too much inventory; in others, too much past optimism on the part of fabricators who rushed into markets on certain items without accurate evaluation of the effects of sudden price changes and without heeding the vagaries of public taste or the real depth of the public pocketbook.

"To sum it up in a phrase," one jobber said, "many are caught in the whirlwind of rapidly rising costs. In ordinary times, all the familiar factors such as labor, supply sources, stability of prices and of markets could be pretty accurately guessed at. Now it is almost impossible to guess. The only alternative is a gamble."

Seattle — Increased price schedules have not retarded volume in the jobbing branch, all items being in steady demand. Sheets are still the most critical while reinforcing bars and the lighter gages of other items are short. Heavy plates, shapes and bars are in improved supply. Wholesalers report turnover equal to the best war period and projected construction seems to promise continued active buying.

Rails, Cars . . .

Track Material Prices, Page 283

New York—While several sizable lists are pending, no new inquiries for domestic freight cars have been reported here within the past several days.

Among the more recent inquiries are 200 seventy-ton tank cars for the Chicago, Burlington & Quincy.

Pennsylvania Railroad, which was recently noted as inquiring for 500 to 2000 box cars, may possibly decide on a program of 5000 or more freight cars, according to reports in the trade.

g Iron . . .

Heat wave reduces melt in midwest but supplies continue tight

Pig Iron Prices, Page 284

ittsburgh—Merchant pig iron short- is expected to remain acute through ainder of this year at least. Current- the iron supply situation is tighter n at any time in recent months, due somewhat lower output of the mer- nt stack here and fact integrated mills utilizing greater proportion of out- for their own consumption. There a number of foundries here operating ess than 60 per cent of capacity, and average for this district is placed ween 70 and 80 per cent. Criticism tinues among local foundry interests pig iron output is not being equitably ributed, with those foundries serving federal housing program getting the ference. Hardest hit as to pig iron ply are the small jobbing shops, n some operating at but 50 per cent capacity. No significant easing in nand for castings is noted, although a interests report customers are hold- up placement of new commitments l projected fall production schedules be more accurately determined.

t the close of last week there were out of 46 blast furnaces active in this rict; one of the units not operating to lack of coke.

ate this year, Jones & Laughlin Steel p. will be forced to start a relining gram for a number of blast furnaces its Pittsburgh and Aliquippa plants. ne of the units normally would have n blown out sometime ago but have n kept in operation to meet urgent el requirements. The relining pro- n will be started in Pittsburgh with taking off of one unit, probably in vember. The program involves about blast furnaces and in at least one ance furnace capacity will be in- ased substantially.

oston—While there is no more iron sight for the fourth quarter, pressure ff slightly for tonnage, notably in Con- ticut where the state sales and use has resulted in cancellations. Foun- s in that state are also seeking orders castings outside Connecticut and the tax effect is spreading. Heaviest pres- e for tonnage comes from malleable ps where backlogs are generally ger than in gray iron units. More rs of basic iron are operating with gerously low supply, including two elworks. No additional iron is slated n Buffalo next quarter and the over- supply situation is not expected to e until integrated steelworks furnaces e more tonnage available for the rchant trade.

Philadelphia — Pig iron supply lags hind demand in this district, with prospect for an even more stringent ation here this month. This opinion based on the fact that September will e one less day and that one blast fur- e at Bethlehem, engaged principally production of merchant iron, will go wn this month for relining. Another trict blast furnace was forced to cur- production by about 10 per cent last nth but may attain a better average put this month. Cooler weather uld improve the coke situation, al- ugh not sufficiently to greatly allevi-

ate the present scarcity, at least during September.

Cleveland—One of the leading producers of pig iron in this district billed shipments last week on the basis of $39.25 for basic, $39.75 for No. 2 foundry and $40.25 for malleable. Other interests in this district are holding prices unchanged at $35.50 for basic.

Foundry operations were curtailed rather sharply during the past two weeks due to the excessive heat. Some foundries closed their plants completely while several others closed at noon on several days in order to give their workers relief from an unusually severe heat wave. It was estimated that production for the month would decline about 15 per cent from that of July.

Some foundries welcomed the curtailment in operations since it gave them an opportunity to build up stocks of coke and pig iron, especially the former which is still in critically short supply. A shortage of workers still persists with no indication of early improvement. Foundries are in need of additional molders, core makers and pattern makers.

Although one blast furnace is down for repairs in this district, it is hoped that September quotas can be held at the same level as for August.

Chicago—The excessive heat which blanketed the Middle West for two weeks to establish all-time record high temperatures forced foundries to reduce operations, thereby decreasing pig iron consumption. With iron being desperately tight, however, this condition has not lessened pressure on suppliers and furnaces for shipments, the foundries figuring that with the iron in hand they would be able to overcome production losses with arrival of cooler weather. Of the district's 42 blast furnaces, 39 are operating. By mid-September, Inland Steel Co. expects to have its No. 3 Indiana Harbor stack back into production after relining and will then devote full time of one furnace to merchant iron.

Buffalo—One producer's shipments last week were billed at $39.50 for basic, $40 for No. 2 foundry and $40.50 for malleable, or $4 above the general market.

Tightness continues to grip the market. Raw materials continue to loom as a serious problem.

Cast scrap prices are maintained despite lower prices on steelmaking grades.

Bethlehem' Lackawanna mill is spending $1,500,000 to repair a battery of 60 coke ovens that was severely damaged during the strike in January, 1946, when workers walked out and left furnaces unattended. The move to repair the ovens was promoted by the growing scarcity of coke.

Cincinnati—Slower shipments of southern iron are bringing cries of anguish from melters who had hoped to expand the melt to meet an insistent demand for castings. Some southern furnaces, facing need for relinings and other production problems, trimmed allocations to this district as much as 25 per cent. Supplies of northern iron have been closer to allocations of the early part of the year. Extremely hot weather during August tended to curb foundry output.

Seattle — The pig iron situation has eased considerably, mill shipments this month having been heavy so that orders are nearly up to date. Demand has dropped noticeably. Carriers are attempting to obtain higher freights but thus far no change has been effected.

Scrap . . .

Scrap Prices, Page 288

Philadelphia — Steel scrap prices a becoming increasingly steady here. The was a slight revision in the maximu prices on the major steelmaking grad last week, but in all other steel iten quotations held. No. 1 and No. 2 heav melting, No. 1 busheling and No. 1 an No. 2 bundles were quoted $36.50 $37, delivered, against a spread a wee previously of $36.50 to $37.50. Ca grades declined more appreciably in tw or three instances, charging box ar heavy breakable cast holding at $43 $44 and clean auto cast at $45 to $4

Buying was rather sluggish last wee with most consumers, especially those steel scrap, having been able recenti to increase their inventories moderatel and to date most shipments have been the higher price levels of two or thre weeks ago. The current week, howeve should see most of this higher price tonnage delivered.

New York—Several foundries in th district closed down during the last wee in August, mainly because of the lack pig iron, although excessive war weather was also a factor. Still othe are planning to close down the wee starting Labor Day unless there is som material improvement in pig iron shi ments. As a matter of fact, notwithstand ing the prospect of somewhat cool weather this month some trade leade doubt if there will be much actual im provement in the melt as compared wit August not only because of the Labo Day holiday but also because Septembe is a shorter month.

Some pig iron sellers believe that th August melt in this district was actuall lighter than in July despite the fact ther was a general closing down for th Fourth of July holiday week for va cations. They point out there were sti quite a few who observed vacations i August, and, further, a number sh down for one or two days at a time be cause of hot weather and increasin stringency in pig iron supply.

New York — Brokers' scrap prices hel unchanged here last week. For the firs time in several weeks there was no much activity by either sellers or buyer the disposition being to mark time unt after the Labor Day holiday. Excep tionally hot weather recently slowed dow collections, although consumers hav been able to build up inventories to som extent. Most of the scrap now movin is still against the higher priced con tracts.

Boston — Differential between heav melting steel and pig iron is more gener ally in line with normal levels. Buyin by district melters is limited and fe have substantial orders outstanding a peak prices. Steel scrap reserves, how ever, are below normal and produce of higher grade carbon steel complain quality. At Providence, R. I., ship-break ing is supplementing one consumer supply. Heavy melting steel prices hav leveled off at about $6 under recen peaks.

Pittsburgh — Steelmaking scrap pur chases were very light last week, wit most mills unable to contract for sizabl tonnages of heavy melting under $40 ton. However, one producer was able t purchase a relatively small tonnage at th $38 level. Brokers and dealers continue to make heavy shipments against old $4 and $40 contracts, with the result som steel producers reported a slight in

crease in scrap inventories. No new buying of consequence on the part of mills is indicated until after Labor Day, at which time the higher priced orders will have been shipped or cancelled.

Some market observers believe the general shortage of good quality scrap will prevent much further reduction in scrap prices, although it is conceded that a $35 price level might materialize should major steel producers continue out of the market indefinitely. The reverse in price trend also could easily develop in the event mills should simultaneously enter the market for large tonnages.

Further price easing in turnings occurred last week, with declines ranging from 50 cents to $1 a ton. Cast iron scrap items remain critically scarce and in many instances shipments are not up to specifications. Some No. 1 cupola cast recently was sold here as high as $43.50.

Ship scrap is reported to be coming out in greater tonnage, while some encouraging progress is indicated in the accumulation of battlefield scrap.

Considerable interest is being shown in the Baltimore & Ohio railroad list, closing Sept. 3, for an indication of the scrap price movement early this month. The last railroad scrap sold was from the Pennsylvania railroad, most of which tonnage was allocated.

Chicago—Scrap prices continue to stand unchanged and with new mill buying of small proportions, quotations are more or less nominal. Supply of melting material is tight and yard operations for a two-week period were below normal because of high temperatures. Steel mills are getting substantial receipts against old orders made when prices ranged up to $42.50 a ton. Until deliveries on these approach an end, perhaps another 30 days, mills may not purchase on an extensive scale. Activity is not likely to remain light long, for this is the period when steelmakers are taking steps to build stronger inventories for the winter.

Cleveland — Shipments of scrap increased further last week and are described by some interests as "excellent." Mills now have a 30-day or better supply. Republic Steel Corp. placed an embargo last Wednesday on shipments of scrap moving to its Buffalo mills due to the unusually heavy movement. Material is moving on old high-priced contracts which appear especially attractive in view of the recent decline in the market. Open-hearth scrap is quoted $38 to $38.50, delivered here, while railroad heavy melting is quoted $41.50 to $42.50, with expectations this price will be shaded.

Weakness developed in certain cast grades last week with charging box cast quoted $42 to $43, heavy breakable at $40 to $41, and clean auto cast $48.

Detroit — Scrap prices were unchanged here last week and probably will continue so until current high-priced orders are filled. Some of these are cancellable as of Sept. 1, others as of Sept. 15. Further price weakness may develop, since steel mills reportedly have agreed on a $3 per ton-reduction in the credit given for returned scrap from customers. Until Sept. 1, this figure had been $20 over the former OPA ceiling price, or a Detroit price of $37.32. Current free market price is about $36, delivered. Under the new set-up, the price on directed or earmarked scrap for steel mills will drop to $34.32 and on this basis the free market might drop to around $33, delivered.

The entire scrap picture locally is extremely jumbled, with the bulk of all generated scrap being earmarked, leaving perhaps only 20 per cent of the normal tonnage on the free market, for which a wild scramble develops among dealers and brokers. Nevertheless, overall, an unusually large tonnage of scrap is moving here, probably in view of the approaching deadlines.

Dozens of "conversion" deals are still in the works, by which auto companies supply scrap to open-hearth or electric furnace plants and then pay $20 a ton or more for conversion to ingots. After this, another source usually must be located to roll the ingots into sheet and strip, bringing the price of the final steel to a sky-high figure and representing, all in all, the most preposterous sort of economic nonsense.

The case is cited of one auto plant here buying No. 2 melting steel in Louisiana, paying $47.50 per ton for it and shipping to a Pittsburgh mill for conversion to ingots. Despite the premium price, 77 cars of the scrap were rejected by the mill, all the while scrap interests in Louisiana were sure this purchase established the going price on No. 2 steel there.

Buffalo—While scrap prices dipped another 50 cents a ton on limited brokerage sales, steadier tendencies are apparent. The majority of leading dealers are confining activities to covering recent sales made at $43 a ton for steelmaking grades, which compares with a current range of $38.50 to $39.50. Dealers display a wariness of consumers' moves to emphasize alleged abnormal price advances. Dealers also are in the advantageous position of buying on a weaker market to cover sales made at the $43 figure. A definite trend in the local market is not expected until present contracts expire. Dealers also contend that no pronounced weakness is likely in the scrap market as long as ingot operations remain high and scrap supplies are light. Mill's efforts to build up winter reserve stocks are meeting with little success.

Cincinnati—Cast scrap is softer in this district, although the situation has not yet been reflected in a general reduction in prices. In some cases dealers have reduced their offering prices as a precaution against a skid. Demand, however, is holding up well, one factor being the severe pinch in pig iron. Steelmaking grades are moving steadily on old contracts, as the mills shun tonnage buying at current quotations. Material is coming out in fair volume, most of the trade depending largely on production and railroad scrap at the present time.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 284

Pittsburgh—The present foundry coke shortage would be accentuated considerably if foundry interests had sufficient pig iron and/or cast iron scrap to push production schedules up to desired levels. There is adequate supply of foundry coke to sustain foundry operations up to about 80 per cent of capacity but no higher. Installation of additional coke ovens later this year should ease oven foundry coke shortage somewhat. However, most producers expect to continue present policy of allocating limited tonnage available through most of this year.

Reflecting shortage of furnace coke, Carnegie-Illinois Steel Corp. recently was

forced to bank No. 4 unit at its Edgar Thomson Works and Nos. 1 and 2 at Duquesne plant on Aug. 15. However, by close of last week two of these units were blown in and the third is scheduled to be placed in operation this week.

United States Steel Corp. last week placed in operation the second of two Koppers-Becker coke oven batteries that have been rebuilt at company's Clairton Works. Each of these rebuilt batteries utilizes 2500 tons of coal a day, thereby substantially increasing coke capacity at this plant.

Iron Ore . . .

Iron Ore Prices, Page 284

Cleveland—Season's cumulative shipments of Lake Superior iron ore from upper lake ports up to Aug. 25 were 48,396,883 gross tons, an increase of 16,701,832 gross tons over the 31,695,051 tons shipped in the comparable period last season, according to the Lake Superior Iron Ore Association, this city. Of the total, 47,449,258 tons were shipped from United States ports and 947,625 tons from Canadian ports, compared with last year's shipments for the like period of 31,030,488 tons and 664,563 tons from American and Canadian ports, respectively.

Of the total ore shipped so far this year, American ports were credited with the following tonnages; last year's tonnage figures are in parentheses: Escanaba 2,583,799 (1,567,869); Marquette 2,742,186 (1,280,112); Ashland 3,287,911 (2,066,551); Superior 16,956,459 (9,854,965); Duluth 11,457,596 (8,633,504); and Two Harbors 10,421,307 (7,627,487). Shipments from Canadian ports this year, and for the like period of 1946, were: Michipicoten 254,358 (269,889); and Port Arthur 693,267 (394,674).

Canada . . .

Toronto, Ont. — Production of primary iron and steel shapes in Canada during May totaled 282,543 net tons, including 271,176 tons of carbon steel shapes and 11,367 tons of alloy steel shapes which compares with production of 277,010 tons in April, including 267,166 tons of carbon steel shapes and 9844 tons of alloy shapes and with 254,612 tons in May, 1946, which included 246,584 tons of carbon steel shapes and 8,028 tons of alloy shapes.

Of the above production, 74,813 tons were for producers' interchange, which represents the amount shipped to producers' own plants or to other plants within the primary industry for further processing; while for April producers' interchange amounted to 75,474 tons and in May, 1946, amounted to 60,121 tons.

For May shipments of primary iron and steel shapes exclusive of producers' interchange totaled 202,681 net tons, including 191,562 tons of carbon steel shapes and 11,119 tons of alloy steel shapes, compared with 206,682 tons in April, including 197,344 tons of carbon steel shapes and 9338 tons of alloy shapes, and with 209,940 tons including 202,468 tons of carbon steel shapes and 7328 tons of alloy steel shapes for May, 1946.

The May, 1947, shipments for sale included 5648 tons of semifinished shapes; 14,064 tons of structurals; 19,019 tons of plates; 15,164 tons of rails; 51,289 tons of hot-rolled bars; 12,815 tons of pipes and tubes; 16,897 tons of wire rods; 20,404 tons of black sheets; 7353 tons of galvanized sheets; 395 tons of tool steel; 7775 tons of castings, and 31,858 tons of other shapes.

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(*Concluded from Page 42*)

ranked as follows in order of their percentage of the product's net total offered for sale: Concrete reinforcing bars 17.4; barbed and twisted wire 14.6; semifinished steel (excluding skelp and wire rods) 14.5; rails (over 60 lb) 13.6; ordinary black plate 12.8; wheels 12.7; joint bars 12.7; steel piling 11.3; electric weld pipe, tubes 10.0; structural shapes 8.2; plates 8.2; seamless pipe, tubes 8.1; butt weld pipe, tubes 6.9; tie plates 6.9; hot rolled bars 5.9; wire rods 5.7; lap weld pipe, tubes 5.6; track spikes 5.4; chemically treated black plate 5.0; coated sheets 4.5; drawn wire 4.1; mechanical and pressure tubing 3.9; hot rolled strip 3.9; electrolytic tin and terne plate 3.6; hot rolled sheets 3.0; conduit 3.0; electrical sheets and strip 2.6; nails and staples 2.4; cold finished bars 2.3; cold rolled sheets 2.2; tool steel bars 1.7; woven wire fence 1.5; axles 1.3; cold rolled strip 1.0; enameling sheets 0.7; and bale ties 0.5.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

2625 tons of piling, including 2250 tons sheet piling, 250 tons with weep holes and 125 tons of T piling, coffer dam for floor control project, Mt. Morris, N. Y., U. S. Engineers Office, on separate contracts to Bethlehem Steel Co., Bethlehem, Pa.

1400 tons, ventilator building, Governors Island, N. Y., in connection with the Brooklyn-Battery tunnel, through J. J. Waters, 415 Lexington Ave., New York, general contractor, to Lehigh Structural Steel Co., Allentown, Pa.

420 tons, high voltage laboratory, General Electric Co., Pittsfield, Mass., through Basco Services, New York, to Lehigh Structural Steel Co., Allentown, Pa.

210 tons, warehouse, General Grocer Co., Davenport, Iowa, to Joseph T. Ryerson & Son Inc., Chicago; Priester Construction Co., Davenport, Iowa, contractor.

200 tons, plant addition, Sloane-Blabon Corp., Philadelphia, to Lehigh Structural Steel Co., Allentown, Pa.

185 tons, highway bridge, Arnold, Ill., for State Highway Department, to American Bridge Co., Pittsburgh.

100 tons, research laboratory, E. I. du Pont de Nemours & Co., Tonawanda, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.; George W. Walker & Sons, Buffalo, contractors.

100 tons, plant addition, Heyden Chemical Corp., Princeton, N. J., to Keystone Structural Steel Co., Trenton, N. J.

STRUCTURAL STEEL PENDING

1000 tons, kraft paper mill for St. Regis Paper Co., Tacoma, Wash.; project approved by directors.

1000 tons, three public schools, East Hartford, Conn., bids asked.

760 tons, school No. 164, Queens, New York, Christo Construction Corp., 26 Court St., Brooklyn, N. Y., now on general contract.

500 tons, plant addition, International Printing Ink Co., Elizabeth, N. J., bids asked.

400 tons, high school, Williston Park, Long Island, N. Y., bids asked.

300 tons, Chester county dam painter gates, Oxford, Pa.; Arundel Corp., Baltimore, general contractor, low.

150 tons, addition and alterations, International Nickel Co., Bayonne, N. J., bids asked.

170 tons, plant addition, Kind & Knox Gelatin

Co., Camden, N. J.

Unstated, $4 million, 11-story exchange building for Pacific Telephone & Telegraph Co., Portland, Oreg., planned for 1948; Pietro Belluschi, Portland, architect.

REINFORCING BARS . . .

REINFORCING BARS PLACED

239 tons, including 137 tons bars and 102 tons mesh, paving cont. R-2836, Lawrence county, Ind., for State Highway Commission, to Bethlehem Steel Co., Bethlehem, Pa.; Calumet Paving Co., Indianapolis, contractor.

117 tons, bridge over Little Calumet river, for Cook county, Ill., to Carnegie-Illinois Steel Corp., Chicago, through Arcole-Midwest Corp., Chicago.

REINFORCING BARS PENDING

4564 tons, contracts 3 and 4, South Side intercepting sewer, Sanitary District of Chicago, Chicago; bids Sept. 11.

1350 tons, five units, University of Washington medical-dental school, Seattle; S. S. Mullen Construction Co., Seattle, low $2,392,678.

165 tons, Washington state highway projects in Yakima and Lewis counties; bids in.

Unstated, $2 million tuberculosis hospital, Selah, Wash.; bids to John W. Mahoney, architect, Seattle, Sept. 17.

Unstated, four buildings Oregon State hospital, Salem; Sound Construction & Engineering Co., Seattle, low $1,088,121.

Unstated, 5600-ft. reinforced tunnel for California-Oregon Power Co., Toketee Falls, Oreg.; L. E. Dixon, Medford, low $1,055,750.

Unstated, $400,000 Fibreboard Products Plant, Portland, Oreg., general contract to L. H. Hoffman, Portland.

Unstated, Lincoln Bowl grandstand, Tacoma, Wash.; Roy T. Earley, Tacoma, low $195,731.

Unstated, $450,000 state patrol testing station, Seattle; bids to Olympia Sept. 9.

PIPE . . .

CAST IRON PIPE PLACED

276 tons, for Pasco, Wash., to Pacific States Cast Iron Pipe Co., Provo, Utah.

CAST IRON PIPE PENDING

Unstated, 4, 6 and 8 inch cast iron pipe and fittings, Alderwood Manor, Wash.; bids Sept. 3; R. E. Wolff, Seattle, engineer.

STEEL PIPE PLACED

200 tons or more, 6 inch, 10 gage steel pipe, for Bertha water district, Portland, Oreg., to Pacific Water Works Supply Co., Portland.

RAILS, CARS . . .

RAILROAD CARS PLACED

Chicago & Eastern Illinois, 100 seventy-ton hoppers, to General American Transportation Corp., Chicago (first quarter delivery); 50 seventy-ton mill type drop gondolas, to Greenville Steel Car Co., Greenville, Pa.

Chicago, Indianapolis & Louisville, 350 fixed-end high side steel gondolas, to Pullman-Standard Car Mfg. Co., Chicago; 50 drop-end mill-type gondolas, to Greenville Steel Car Co.

RAILROAD CARS PENDING

Chicago, Burlington & Quincy, 200 seventy-ton tank cars, bids asked.

Chicago, Indianapolis & Louisville, 200 40-ft 6-in. box cars, 100 50-ft 6-in. box cars, 100 fifty-ton hopper cars, 50 flat cars and 25 stock cars, bids asked.

Erie Railroad, 1000 fifty-ton hopper cars, 750 fifty-ton box cars, and 100 seventy-ton covered hopper cars; bids Sept. 16.

Lehigh & New England, 100 covered hopper cars, bids asked.

LOCOMOTIVES PENDING

Erie Railroad, ten 1000-hp diesel-electric switchers and one 660-hp diesel-electric switcher; bids Sept. 3.

CONSTRUCTION AND ENTERPRISE

CALIFORNIA

ARCATA, CALIF.—California Fabricators, H. W. Cole, 19 Palm St., San Rafael, owner, has awarded a $100,000 contract to Mercer-Fraser Co. Second and Commercial Sts., Eureka, for a plant to manufacture prefabricated structures.

LOS ANGELES—International Printers Ink Corp., 816 W. Fifth St., plans to build a $75,000 plant at 707 E. 62nd St. Architect is A. R. Hutchason, 816 W. Fifth St.

SAN LEANDRO, CALIF.—Chrysler Corp., Detroit, has awarded a contract estimated at $4 to $7 million to Swinerton & Walberg, 225 Brush St., San Francisco, for a truck and automobile assembly plant here.

CONNECTICUT

BRIDGEPORT, CONN.—Bridgeport Gas & Light Co., 815 Main St., will build a $117,000 plant addition to its gas purifier and control house facilities at Wordin and Howard Aves.

BRIDGEPORT, CONN.—Singer Co., 803 E. Washington Ave., has awarded a $75,000 contract to Harry Mering Jr. Inc., 536 Lindley St., for a 1-story factory addition.

HARTFORD, CONN.—Austin Organ Co., 156 Woodland St., has awarded a $55,000 contract to Massacoe Building Co. Inc., 16 Owen St., for construction of factory additions.

NEW HAVEN, CONN.—Berger Bros., Derby Ave., has awarded a $100,000 contract to W. J. Megin Inc., 51 Elm St., Naugatuck, for the construction of a factory addition.

NEW HAVEN, CONN.—New Haven Gas & Light Co., 89 Crown St., has awarded an $83,000 contract to United Engineers & Constructors, Chestnut St., Philadelphia, for a household storage gas holder.

ILLINOIS

CHICAGO—Darling & Co., 4201 S. Ashland St., plans to build factory additions and remodel its existing plant. Architect is S. L. Riely, 300 W. Adams St.

CHICAGO—Revere Camera Co., 320 E. 21st St., has awarded a $180,000 contract to Ragner Benson Inc., 4744 W. Rice St., for construction of a factory. Architect is V. L. Charn, 4744 W. Rice St.

LINCOLNWOOD, ILL.—Bell & Howell Co., 7110 McCormick Rd., plans to build a warehouse and garage. Architect is B. A. Gordon Co., 1 N. LaSalle St., Chicago.

LINCOLNWOOD, ILL.—Kelite Products, 315 W. Hubbard St., has awarded an $85,000 contract to A. B. Larson, 3937 W. Lake Rd., for construction of a factory. Architect is Sessions Engineering Co., 1 N. LaSalle St., Chicago.

MICHIGAN

PONTIAC, MICH.—Pontiac Division of General Motors Corp. has awarded a $50,000 contract to Allegheny Industrial Electric Co., Pittsburgh, for extension of electrical wiring for nine furnaces at Pontiac's plant here.

MINNESOTA

ST. PAUL—Rihm Motor Co., J. H. Rihm, president, 1641 University Ave., plans to build a warehouse, terminal and service station.

MISSOURI

MOBERLY, MO.—A.B.C. Packaging Machine Corp. has awarded separate contracts, totaling over $500,000, for a foundry. Architect is D. O. Hofner, Quincy, Ill.

SPRINGFIELD, MO.—Deere & Co., 1325 Third Ave., Moline, Ill., has awarded a $150,000 contract to Chapman & Bramer, 38½ South Ave., for construction of a warehouse and office at National Ave. and Division St.

MONTANA

BILLINGS, MONT.—Continental Oil Co. h let a contract to Jones & Laughlin Supp Co. to construct a refinery here to cost $5 500,000. Plant will have a capacity 7500 barrels a day.

NEW YORK

MASPETH, N. Y.—Circle Wire & Cable Corp Maspeth Ave. and Rust St., plans to build $420,000 factory. Engineer is Saul Gole smith, 80 Livingston St., Brooklyn.

TONAWANDA, N. Y.—Continental Can C will build a $2 million fiber drum an container plant here on a 40-acre site r cently purchased.

OHIO

AKRON—Goodyear Tire & Rubber Co. wi spend over $7 million for machinery an equipment to be installed in Plant C, forme aircraft factory building Goodyear purchase from WAA.

CLEVELAND—Tubalcain Metals Inc. has bee formed by Stephan Koska, 2077 W. 53r St., to manufacture metal products.

CLEVELAND—Gyro Motors Corp. has bee formed by Clifford S. Goby, 10308 Wilbu Ave., and associates to manufacture automo motive vehicles.

CLEVELAND—R. & R. Machine Tool Co 9921 Elizabeth Ave., has been incorporated Present plans call for installation of addi tional machinery and equipment.

CLEVELAND—Profile Centerless Grinding Co Inc., 4900 Ridge Rd., has been incorporate with Nicholas Homer as president and sec retary. Firm plans to expand its busines and new equipment and machinery will b added.

CLEVELAND—Angell Nail & Chaplet Co 4590 E. 71st St., is planning a $100,000 ex pansion program to include a factory addi tion, a warehouse and new equipment.

CONNEAUT, O.—Rubber & Chemical Prod ucts Co., 520 Mill St., is planning to expan its plant here. Firm also purchased recentl a tract of land in Jefferson, O., for a pro posed plant.

DEFIANCE, O.—General Motors Corp., Cen tral Foundry Division, Detroit, plans t build a $500,000 foundry here.

FREDERICKSTOWN, O.—J. B. Foote Found ry Co. plans to start an expansion progra to include a new shop and storage buildin

LORAIN, O.—National Tube Co. is asking fo bids on a $350,000 project for the foundatio of a blooming mill.

TOLEDO, O.—Gulf Refining Co., Gulf Bldg Pittsburgh, will build a $60,000 steam-mak ing and water pumping station at 293 Front St.

TOLEDO, O.—Toledo Edison Co., H. H. Ker vice president, Edison Bldg., has awarde a $350,000 contract to A. Bentley & Son Co., 201 Belmont Ave., for construction o an underground steam-heating main in down town area.

YOUNGSTOWN—Youngstown Sheet & Tub Co. will build a fuel oil storage tank at i Brier Hill plant which will boost the com pany's storage capacity 50 per cent.

OKLAHOMA

OKLAHOMA CITY, OKLA.—Cities Servic Gas Co., First National Bank Bldg., plan to build 74 miles of natural gas lines i Oklahoma. Cost is estimated at $1,500,00

PENNSYLVANIA

PHILADELPHIA—General Motors Corp., De troit, has awarded a $250,000 contract t Henry E. Baton Inc., 1717 Sansom St., fo construction of a 1-story wholesale buildin

SUNBURY, PA.—Pennsylvania Power & Ligh Co., 534 Main St., Allentown, plans t build a $20 million steam electric genera ing station here. Engineer is Ebasco Ser ices Inc., 2 Rector St., New York.